

REPORT AND
RECOMMENDATIONS
TO THE SECRETARY,
U.S. DEPARTMENT
OF HEALTH AND
HUMAN SERVICES
MARCH 1, 1990

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PROSPECTIVE PAYMENT
ASSESSMENT COMMISSION

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PROSPECTIVE PAYMENT ASSESSMENT COMMISSION
300 7th Street, S.W. Washington, D.C. 20024 (202) 453-3986

Stuart H. Altman, Ph.D.
Chairman

Donald A. Young, M.D.
Executive Director

March 1, 1990

The Secretary
Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Mr. Secretary:

I am pleased to transmit to you the annual report of the Prospective Payment Assessment Commission as required by Section 1886(e)(4) of the Social Security Act as amended by Public Law 98-21. This report contains 15 recommendations for updating the Medicare prospective payment system and modifying the diagnosis-related group classifications and weighting factors.

Sincerely,



Stuart H. Altman, Ph.D.
Chairman

Enclosure

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Executive Summary

Executive Summary

In this report for fiscal year 1991, the Prospective Payment Assessment Commission (ProPAC) reviews the goals, principles, and major design features of the Medicare prospective payment system (PPS) and presents 15 recommendations for improving the system. These recommendations are directed to the Secretary of the Department of Health and Human Services (HHS) and the Congress. The Commission's report and recommendations reflect the collective judgment of ProPAC's Commissioners about issues of substantial importance to beneficiaries, hospitals, and the Medicare program.

THE DESIGN AND PERFORMANCE OF PPS

From 1966 until 1983, Medicare reimbursed hospitals for the costs they incurred in providing inpatient care to program beneficiaries. Increases in hospital costs were met by proportionate increases in Medicare payments. As a result, cost reimbursement reduced hospitals' financial incentives to use inpatient resources efficiently.

In 1983, Congress replaced cost reimbursement with PPS, a system of prospectively determined payment rates set on a per-discharge (case) basis. The primary goal of PPS was to control the rate of increase in hospitals' Medicare costs and thereby limit the rate of growth of program expenditures for inpatient care. At the same time, however, hospital payments were intended to be sufficient to maintain high-quality care for all beneficiaries. The greatest challenge to the Commission and other policymakers has been to achieve a reasonable balance between the potentially conflicting goals of controlling cost increases while maintaining access to high-quality care.

PPS attempted to achieve the primary goal of cost control through the influence of financial incentives rather than direct regulatory controls. The financial incentives of PPS are based on a set of five principles:

- Payment rates are set in advance of the period to which they apply,
- Hospitals are required to accept the rates as payment in full,
- Rates are set on a per-case basis with a different rate for each diagnosis-related group (DRG),
- Differences between a hospital's costs and the payment rates for individual cases in a DRG are expected to balance out over all of the hospital's cases in that DRG, and
- Separate payment policies are applied for extraordinary cases.

It was anticipated that hospital management, facing per-case payment rates based on these principles, would have a strong incentive to improve productivity and use less costly inputs. Furthermore, hospital management was expected to influence physicians to reduce lengths of stay and limit the volume and cost of inpatient services provided to each Medicare patient. In addition, it was hoped that hospitals would specialize in caring for patients they could treat efficiently, and adopt cost-reducing new technologies while avoiding those that increase costs.

Hospitals also face other pressures, however, that may limit their response to PPS's financial incentives. For example, hospitals face demands from physicians and patients for increases in the quantity and mix of inpatient services. Consequently, it is difficult to assess the extent to which hospital management has been able to respond to PPS's financial incentives. In addition, the strength of PPS incentives has varied widely over time and among hospital groups and geographic areas. Hospitals have not always responded as policymakers intended.

The Commission also notes that a system of DRG-specific, per-case payment rates may send

false or distorted signals to hospitals. Hospitals' responses to PPS incentives—to reduce costs in particular DRGs, specialize in treating specific cases, and adopt certain technologies—depend on the accuracy of DRG definitions and their relative weights. Thus, limitations of the DRG definitions, the assignment of cases, and the calculation of weights may dilute or distort incentives for efficiency.

Policymakers intended that PPS would reward hospitals for efficiency and penalize them for inefficiency. They recognized that PPS could not be successful unless the payment rates for individual hospitals are adjusted appropriately to account for factors, other than management efficiency, that affect the cost of treating Medicare patients. Therefore, the design of PPS includes a set of payment rate adjustments that recognize measurable differences among hospitals in the mix of outputs they produce and the economic conditions they face in each local area. As part of the design, several features of the PPS payment formula help ensure equitable treatment of all hospitals, Medicare beneficiaries, and geographic areas.

The most notable adjustment is the use of DRGs to recognize differences in the expected costs of treatment due to variations in the mix and complexity of cases. An additional adjustment recognizes the indirect costs associated with graduate medical education programs. Moreover, since socioeconomic characteristics of the patient population affect costs, PPS provides additional payments to hospitals serving a disproportionate share of low-income patients.

The Commission believes that both the indirect medical education and disproportionate share adjustments are achieving their intended purposes. Nevertheless, ProPAC plans to continue to evaluate the appropriate level of these adjustments.

Hospitals' costs also may vary due to different economic conditions in each local area. Therefore, each hospital's payment rate is adjusted by a wage index to reflect the prevailing wage level for hospital workers in its labor market area. The wage adjustment is the single most important factor affecting the distribution of PPS payments among hospitals. The Commission believes that major improvements are possible in the definition of

hospital labor market areas and in the data used to calculate the wage index.

Local and regional differences in the cost of care are also recognized through other policies and adjustments. These include the establishment of separate payment rates for hospitals located in large urban, other urban, and rural areas; the special treatment given to certain groups of rural hospitals; and extra payments for especially costly cases. The Commission is continuing to examine these and other issues to ensure an equitable distribution of PPS payments.

Another PPS design issue is how to adjust the level of payments to respond appropriately to changes in technology, practice patterns, and economic conditions. To address this issue, PPS provided for an annual update of the payment amounts. The annual update factor is intended to adjust hospitals' DRG payment per case for changes in factors that are expected to affect the cost of efficiently providing care to Medicare beneficiaries. The Commission has followed a similar framework each year in developing its annual update recommendation. This framework is described in the recommendations summarized later in the Executive Summary.

Since PPS has been in place, the rate of increase in Medicare expenditures for hospital inpatient care has slowed substantially. The rate of increase in hospitals' Medicare cost per case has also been reduced. This effect was greatest in the first year of PPS when hospitals anticipated a reduction in revenues. Since then, the rate of increase in hospitals' Medicare cost per case has returned almost to previous levels. Nevertheless, the rate of increase appears to be lower than it would have been under the old cost reimbursement policy.

These outcomes have been achieved without serious discernible effects on Medicare beneficiaries' access to care or on the quality of the care they receive. Clearly, much more research is needed to improve measurement of access to care and quality of care. Since the introduction of PPS, however, the Commission has searched for but not found evidence of substantial or systematic changes in either access to inpatient care or the quality of care for Medicare beneficiaries.

The Commission believes that PPS has partially met its intended goals. The move from cost reimbursement to prospectively determined per-case payment rates created financial incentives to control costs. In the early years, these incentives were relatively weak. While hospitals initially expected lower payments, the actual payment rates were higher than policymakers intended. Moreover, PPS's payment incentives may have been overwhelmed by other pressures hospitals faced in their local communities. More recently, however, the financial pressure faced by hospitals has increased. Thus, PPS may only now be reaching the point where its impact may be strongly felt.

As the financial pressure of PPS continues, however, the design features of the system need to be reviewed even more carefully to ensure adequacy in the level of payments and equity in the distribution of those payments among hospitals and geographic areas. The Commission believes that an adequate level and distribution of payments are critical to achieving the goal of cost containment while maintaining access to high-quality care for Medicare beneficiaries.

For this reason, the Commission has concluded that the adequacy of current payment adjustments remains one of the central policy dilemmas of PPS design. In designing PPS, policymakers consciously decided not to allow for cost variations among hospitals except for variations due to factors beyond hospitals' control. The payment adjustments in PPS are further limited to factors that are readily measurable and clearly related to cost per case. As a result, some factors that affect costs and are beyond hospitals' control are not addressed in determining PPS payment rates.

The wide variability of hospital financial performance under PPS suggests that the current set of payment adjustments fails to capture some key sources of cost variation. The Commission believes that resolution of this problem is crucial to the continued ability of PPS to meet its most important goals. Therefore, this issue will have a prominent place on the Commission's future analytic agenda.

SUMMARY OF THE RECOMMENDATIONS

In Chapter 2, ProPAC presents 15 recommendations for updating and improving PPS. The Com-

mission believes that its proposed changes are necessary for maintaining access to high-quality health care, encouraging hospital productivity and cost-effectiveness, and permitting the adoption of innovative and appropriate technological change. ProPAC developed its recommendations by setting priorities, responding to public concerns, analyzing information, and deliberating. The recommendations are offered to comply with the Commission's statutory mandate and to contribute to an informed and open debate about hospital payment policy under PPS. For fiscal year 1991, the 15 recommendations fall into four broad areas:

- Updating PPS payments,
- Adjusting the PPS payment formula,
- Improving patient classification and case-mix measurement, and
- Improving the data used for decision making.

Updating PPS Payments—The Commission recommends an average increase of 4.9 percent in the level of PPS prices for fiscal year 1991. This would provide an increase of 4.5 percent for hospitals in both large urban areas and other urban areas, and a 7.0 percent increase for hospitals in rural areas. The update factor recommendation combines several components: the PPS market basket, adjustments for errors in the market basket forecast, the discretionary adjustment factor, and an adjustment for case-mix change.

The fiscal year 1991 PPS market basket was forecasted to increase 5.4 percent when the Commission developed this recommendation. The PPS market basket is used to estimate inflation in the prices of goods and services purchased by hospitals. The Commission also recommends improving the validity and reliability of the market basket by giving more weight to hospital industry wages and contract labor expenses. This recommendation was incorporated into the market basket forecast.

No market basket forecast error adjustment is required for fiscal year 1991. The Commission recommends basing an adjustment for forecast error on actual data from 1989, instead of on estimated error in the forecast for 1990.

The Commission believes that the costs of scientific and technological advancement can be funded

by productivity improvements within each hospital. Therefore, the allowance for scientific and technological advancement was offset against the allowance for productivity improvement.

An adjustment for case-mix change of -0.5 percent offsets the estimated extra revenues that hospitals received in 1990 from case-mix index increases that were not due to treating sicker patients. As noted in previous reports, case-mix index change has been a larger source of PPS revenue increases over time than the annual payment updates and all other payment policy changes combined.

The Commission also recommends raising the standardized amount for rural hospitals to the level of the standardized amount for other urban hospitals over three years. In the first year, the Commission recommends an increase for rural hospitals of 2.1 percent above the average update. A reduction in the update factor for all urban hospitals would be used to offset the additional increase for rural hospitals. Therefore, the Commission also recommends that the increase for large urban and other urban hospitals be 0.4 percent less than the average update.

The update is only one source of growth in PPS payments to hospitals. Changes in reported case mix also result in changes in PPS payments. As a result, the fiscal year 1991 increase in average per-case PPS payments under all of ProPAC's recommendations will be greater than the 4.9 percent recommended update.

The Commission believes that a separate update factor is required for PPS-excluded hospitals and distinct-part units, and recommends an increase of 5.6 percent. This update is equal to the projected increase in the market basket for excluded facilities because both the forecast error correction and the discretionary adjustment factor are zero, and no case-mix adjustment is available for these facilities.

Adjusting the PPS Payment Formula—The Commission believes the level of the indirect medical education adjustment should be reduced from 7.7 percent to 6.8 percent for every 0.1 increase in the ratio of interns and residents to beds. ProPAC balanced two factors in making this recommendation: a recognition that Medicare is more than

adequately compensating teaching hospitals, and a serious concern for the overall financial condition of major teaching hospitals. The Commission further recommends that the savings from this reduction be returned to the standardized amounts of all hospitals.

The Commission is concerned that the current area wage index overcompensates some hospitals and undercompensates others. The Commission recommends that the Secretary begin collecting data to evaluate the effects of adjusting the area wage index for differences in occupational mix.

Improving Patient Classification and Case-Mix Measurement—The Commission believes that improving case-mix measurement and patient classification are necessary to ensure accurate and equitable payments to hospitals. As a result, ProPAC urges the Secretary to continue developing and evaluating improvements in measuring hospital case mix.

The Commission also recommends making improvements to the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) coding system. These improvements should continue and should be carried forward into ICD-10.

The Commission supports a revision of the Uniform Billing Form to allow reporting of additional diagnosis and procedure codes. This modest expansion would enhance the analysis of refinements in DRG definitions.

The Commission concludes that a systematic evaluation of the codes contained in the complications and comorbidities (CC) list is warranted. Special attention should be paid to improving codes that would result in assigning seriously ill cases to categories that would better reflect their resource requirements.

The Commission reiterates its position that cases with Guillain-Barré Syndrome should be reassigned to DRG 20, DRG 34, or a new DRG.

Improving the Data Used for Decision Making—The Commission advocates using more timely and accurate data as the basis of PPS policy analysis. The Commission recommends placing

greater emphasis on auditing and processing the income statement section of the Medicare Cost Report.

ProPAC also encourages the Secretary to collect more comprehensive and timely information on the utilization, expenditures, sources of payment, insurance coverage, satisfaction and perceptions of Medicare beneficiaries. This information would improve the analysis of potential changes to the Medicare program.

Finally, the Commission recommends that the Secretary begin developing a database that includes the total volume of selected procedures performed in a hospital. The database should also contain the number of procedures performed by physicians in each hospital in which they practice. This information would be valuable for studying the effect of procedure volume on outcomes and costs.

Four appendixes to this report provide additional information. Appendix A includes background material and analyses that form the basis for some of the Commission's recommendations. Appendix B lists ProPAC's technical reports describing additional research and analysis completed by the Commission. Appendix C highlights the background of each Commissioner and describes ProPAC's operations. Appendix D reports changes in DRG relative weights from fiscal year 1989 to fiscal year 1990.

RECOMMENDATIONS FOR FISCAL YEAR 1991

Updating PPS Payments

Recommendation 1: Amount of the Update Factor for PPS Hospitals

For fiscal year 1991, the PPS standardized payment amounts should be updated to account for the following factors:

- The projected increase in the modified PPS market basket recommended by ProPAC, currently estimated at 5.4 percent;
- A correction for substantial errors in the fiscal year 1989 market basket forecast, currently estimated at zero;
- A discretionary adjustment factor of zero; and

- A net -0.5 percent adjustment for case-mix change.

In addition, a positive adjustment of 2.1 percent for rural hospitals and a negative adjustment of 0.4 percent for large urban and other urban hospitals should be made to reflect the first year of a three-year phase-out of the differential in the standardized amounts between rural and other urban hospitals.

Recommendation 2: Market Basket Structure

The Commission believes the weight accorded to the hospital industry wage portion of the market basket should be increased to better reflect changes in hospital and other labor markets. The wage and benefit component of the market basket should be measured using a blend of 50 percent of the Employment Cost Index compensation series for hospital workers and 50 percent of nine non-hospital ECI compensation series reflecting the types of employees hospitals hire. The Commission also believes that contract labor expenses should be incorporated into the new compensation component in the market basket.

Recommendation 3: Discretionary Adjustment Factor

For fiscal year 1991, the net allowance for scientific and technological advancement and productivity improvement in the discretionary adjustment factor should be zero.

Recommendation 4: Adjustments for Case-Mix Change

For fiscal year 1991, the PPS standardized amounts should be reduced by 0.5 percent to account for increased payments from case-mix index change. This adjustment reflects:

- A 2.7 percent reduction for the estimated case-mix index change during fiscal year 1990,
- A positive allowance of 1.5 percent for real across-DRG case-mix index change during fiscal year 1990, and
- A positive allowance of 0.7 percent for within-DRG case-complexity change during fiscal year 1990.

Recommendation 5: Eliminating the Differential between the Other Urban and Rural Standardized Amounts

The differential between the standardized payment amounts for hospitals located in Metropolitan Statistical Areas with fewer than 1 million people (other urban hospitals) and for hospitals located outside MSAs (rural hospitals) should be eliminated. Through differential updates, the rural standardized amount should be increased until it equals the other urban standardized amount. This should be accomplished by fiscal year 1993 in a budget neutral fashion. For fiscal year 1991, hospitals located in rural areas should receive an update of 7.0 percent, which is 2.5 percentage points higher than hospitals located in urban areas.

Recommendation 6: Update Factor for PPS-Excluded Hospitals and Distinct-Part Units

For fiscal year 1991, the target rate of increase for excluded hospitals and distinct-part units should be determined separately from the PPS update factor. The target rate of increase should equal the projected increase in the appropriate market basket. Based on the Commission's most current information, the recommended rate of increase is 5.6 percent for fiscal year 1991.

Adjusting the PPS Payment Formula

Recommendation 7: Indirect Medical Education Adjustment

The Commission recommends that the Secretary seek legislation to reduce the indirect medical education adjustment from its current level of 7.7 percent to 6.8 percent for fiscal year 1991. This reduction should be implemented in a budget neutral fashion, with the savings returned to all hospitals through corresponding increases in the standardized amounts.

Recommendation 8: Improving the Area Wage Index

The Secretary should begin immediately to collect data on employee compensation and paid hours of employment for hospital workers in each occupational category. After collecting these data, the

Secretary should carefully evaluate the effect of adjusting the area wage index for differences in the occupational mix of employment.

Improving Patient Classification and Case-Mix Measurement

Recommendation 9: Improving the DRG System for Measuring Case Mix

The Commission strongly urges the Secretary to continue developing and evaluating improvements in the measurement of hospital case mix and patient resource use.

Recommendation 10: Improving Medical Record Coding, Reporting, and DRG Assignment

The Secretary should continue to improve the ICD-9-CM coding system to allow for more accurate clinical reporting. The Commission continues to support a more timely, systematic, and consultative approach to consideration of new ICD-9-CM codes. The Commission urges the Secretary to ensure that improvements previously made in the ICD-9-CM system are carried forward into ICD-10. The Secretary should revise the Uniform Billing Form to allow reporting of 10 diagnosis codes and 10 procedure codes.

Recommendation 11: Improving the Use of Complications and Comorbidities for DRG Assignment

The Secretary should continue the ongoing effort to refine the DRGs to improve clinical specificity. The current structure of the DRGs and proposed refinements use the presence of complications and comorbidities to classify patients with respect to resource use. The Secretary should undertake a systematic evaluation of the codes in the CC list, with special attention to improving codes that would assign seriously ill patients to categories that would better reflect their resource requirements.

Recommendation 12: Reassigning Patients with Guillain-Barré Syndrome

The Secretary should reassign patients with Guillain-Barré Syndrome from DRGs 18 and 19 to DRG 20, DRG 34, or a new DRG.

Improving the Data Used for Decision Making

Recommendation 13: Improving the Medicare Cost Report Data Used for Calculating Total Margins

The Secretary should place more emphasis on auditing and processing the income statement section of the Medicare Cost Report.

Recommendation 14: Improving Information on Medicare Beneficiaries

The Secretary should collect more comprehensive and timely information on Medicare beneficiaries, including utilization, expenditures, sources

of payment, insurance coverage (including out-of-pocket costs), and beneficiary satisfaction and perceptions. The Commission believes that the current approach for collecting this information is not adequate for effective policy development.

Recommendation 15: Linking Data on Hospital and Physician Procedure Volume

The Commission urges the Secretary to begin developing a database that would allow examination of the total volume of selected procedures performed in a hospital. Such a database should include the number of procedures performed by physicians in each hospital in which they practice. It should include data from Medicare and other payers.

Chapter 1

Medicare Prospective Payment: Design and Performance

Medicare Prospective Payment: Design and Performance

From its beginning in 1966 until 1983, Medicare reimbursed hospitals for the reasonable costs they incurred in providing inpatient services to program beneficiaries. Additional hospital spending related to patient care resulted in a proportionate increase in Medicare payments. As a result, hospital management had little incentive to use inpatient resources efficiently.

Concerns about rapidly rising Medicare expenditures and the role of cost reimbursement as a contributing factor eventually led to the development of a new method of payment for hospital inpatient care. The new method, called the prospective payment system (PPS), was enacted by Congress in the Social Security Amendments of 1983 (Pub.L. 98-21). Payments based on PPS were implemented for hospital accounting periods beginning during fiscal year 1984.

In the same legislation, Congress established the Prospective Payment Assessment Commission (ProPAC). ProPAC is an independent agency that provides analysis and recommendations on PPS payment issues to the Secretary of Health and Human Services (HHS) and to Congress. This is the Commission's sixth annual report to the Secretary on refining and updating PPS.

Since the beginning of PPS, Congress repeatedly has modified the system to achieve budget savings and to address issues raised by ProPAC, the Administration, the hospital industry, and other public and private interests. Although various technical aspects of PPS have been altered, the basic goals and the major design features of the system have remained essentially unchanged.

The Commission believes it is important to reevaluate periodically the design and performance of PPS. This chapter highlights the Commission's views regarding the structural strengths and weaknesses of the system. It also provides the context

for the specific recommendations set forth in Chapter 2. The discussion focuses on the appropriateness and validity of the key goals, principles, and assumptions embedded in the design of PPS. Related issues and future concerns are also presented, along with the direction and scope of the Commission's agenda for future analytic work. In June each year, ProPAC publishes a separate report to Congress on the broader effects of PPS on the entire health care system, *Medicare Prospective Payment and the American Health Care System*.

The discussion is organized in four sections. It begins with a brief review of the methods and problems of hospital reimbursement and the evolution of Medicare's payment policy from 1966 to 1983. This section describes the environment that led policymakers to adopt major payment reforms and influenced the design of PPS.

The second and third sections are organized around the framework of the major issues of payment reform. In the second section, the Commission focuses on the goals of PPS and the design principles and techniques that were intended to create appropriate financial incentives for hospitals. The third section describes the PPS principles and techniques related to ensuring equity of payments and maintaining adequacy of payments over time.

The fourth section briefly summarizes the Commission's overall assessment of the performance of PPS. This section highlights structural strengths and limitations of the design of PPS and related current and future issues.

EVOLUTION OF MEDICARE HOSPITAL PAYMENT POLICY

The Medicare program, enacted in 1965, was intended to provide the elderly population with financial protection against the cost of needed

health services. Implementation of this program in July 1966 was followed by a substantial increase in the use of hospital inpatient care by the elderly. In addition, the hospital industry received a large infusion of funds in the form of payments for services furnished to Medicare beneficiaries.

Until 1983, these payments were made using a method known as cost reimbursement. Each hospital was paid based on the costs it incurred in providing inpatient care to program beneficiaries. Because increases in costs were met by a proportionate increase in payments, this payment method reduced the financial risk hospitals otherwise would have faced in making employment and capital investment decisions. Cost reimbursement, therefore, reduced hospitals' financial incentives to use inpatient resources efficiently.

From the beginning, the Medicare program experienced rapid and uncontrolled growth in expenditures for hospital inpatient care. By the early 1980s, program expenditures for inpatient care were increasing at an average rate of nearly 17 percent per year. Projected continuation of this trend threatened the solvency of Medicare's Hospital Insurance Trust Fund.

Rationale for Payment Reform

The large infusion of funds and the reduction of financial risk under cost reimbursement permitted hospitals to respond relatively freely to the other pressures they faced in each local market area. Hospitals were able to satisfy physician and patient demands for increases in the quantity and changes in the mix of inpatient services, with little concern for the cost consequences. In addition, hospitals could adopt new technologies to compete with each other regardless of whether the new services would be used efficiently.

Consequently, hospitals were widely perceived to be inefficient, with low productivity and high costs per unit of service. They also were believed to be producing more services and a more expensive mix of services than were really necessary to meet the medical needs of Medicare beneficiaries and other patients. Moreover, these behaviors were viewed as important sources of the rapid growth of hospital costs for Medicare beneficiaries.

Other factors also were contributing to this situation. Growth of hospitalization insurance, increases in family income and educational levels, and the swift pace of technological change also were driving the rapid growth of Medicare costs for inpatient care. Unlike these other factors, however, the lack of financial incentives for efficiency under cost reimbursement could be changed through payment reform.

Medicare Cost Reimbursement Reforms

Congress began to address these concerns as early as 1967, when it authorized experimentation with alternatives to cost reimbursement. Five years later, in section 223 of the Social Security Amendments of 1972 (Pub.L. 92-603), Congress gave the Secretary of Health, Education, and Welfare (later Health and Human Services or HHS) broad authority to set limits on the costs that would be recognized as reasonable for Medicare hospital reimbursement. In 1974, the Secretary began to use this authority to set limits on the average per diem routine costs (costs per day of room, board, and routine nursing care) that Medicare would reimburse hospitals.

The design of this approach was largely determined by trade-offs between the goals of cost containment and equitable treatment of all hospitals. Costs of special care and ancillary goods and services were excluded from the limits on the grounds that these costs would vary among hospitals primarily according to the mix of Medicare cases treated (case mix). Because HHS lacked the tools to measure case mix and its relationship to hospital inpatient costs, limits on total costs per case would have unfairly discriminated against hospitals that treated relatively expensive types of cases.

Capital costs, such as rent, interest, and depreciation, and the direct costs of other hospital outputs, such as medical education programs, were also excluded from the limits for similar reasons. Capital costs vary according to the age of each hospital's buildings and equipment, as well as the financing methods the hospital used to acquire them. A hospital's direct costs of medical education and training programs—salaries of teaching and support staff and residents, for example—vary in relation to the size and composition of its

teaching programs. HHS lacked sufficient information about these aspects of hospital operations to establish defensible cost limits. Therefore, these costs could not be fairly included.

Critics argued that per diem cost limits would be ineffective and perhaps counterproductive in restraining the cost of inpatient care. The per diem limits applied to less than 50 percent of hospitals' Medicare inpatient costs. Although they applied to almost all hospitals, only a few were actually affected. Therefore, they could not be expected to exert much influence on hospital behavior. In addition, per diem limits gave hospitals an incentive to increase length of stay for Medicare patients. Longer stays would reduce a hospital's average per diem routine costs, but they would increase its total Medicare inpatient costs.

By the early 1980s, a measure of the relative costliness of each hospital's mix of Medicare inpatient cases had been developed. This measure was based on the diagnosis-related groups (DRG) patient classification system. In the Tax Equity and Fiscal Responsibility Act of 1982 (Pub.L. 97-248, or TEFRA) Congress expanded the existing per diem routine cost limits to encompass hospitals' total Medicare inpatient operating costs per discharge. Anticipating PPS, these limits were applied on a per case rather than a per diem basis. In addition, they were adjusted to reflect the relative costliness of each hospital's Medicare case mix. They also covered all inpatient costs attributable to the treatment of Medicare patients, except for capital costs and the direct costs of medical education programs.

This legislation also established a new three-year program of limits on the annual rate of increase in each hospital's Medicare inpatient operating costs per case, known as target rate of increase limits. For many hospitals, however, Medicare operating costs per case were below the limits. The program still paid these hospitals on the basis of the costs they incurred in serving program beneficiaries. Therefore, these hospitals continued to have little incentive to use inpatient resources efficiently.

To remedy this defect, TEFRA required the Secretary to develop a legislative proposal for prospective payment of hospitals under Medicare by December 31, 1982. The Secretary's proposal was adopted, with modifications, in the Social Security

Amendments of 1983. This legislation was signed into law on April 20, 1983, and implemented for hospital cost reporting periods beginning during fiscal year 1984.

GOALS, PRINCIPLES, AND INCENTIVES OF PPS

In this section and the next one, the Commission reviews the major goals, principles, and assumptions embedded in the design of PPS. This section focuses on the features of PPS that create financial incentives for hospitals. In the next section, ProPAC turns to the payment adjustments and other policies that are intended to ensure equity of payment among hospitals.

Goals of PPS

The primary goal of PPS was to control the rate of increase in hospital costs for Medicare beneficiaries and thereby limit the rate of growth of program expenditures for inpatient care. At the same time, however, Congress indicated that the level and distribution of hospital payments under PPS had to be sufficient to maintain access to inpatient care of high quality for all beneficiaries. The greatest challenge to ProPAC and other policymakers has been to achieve a reasonable balance between these potentially conflicting goals of controlling cost increases while maintaining access to high-quality care.

The new system attempted to achieve its primary goal of cost control through the influence of financial incentives rather than by direct regulatory controls. The central idea was that changes in hospital behavior in response to incentives for efficiency would, at a minimum, lower the rate of increase in Medicare costs and program expenditures. In the view of many policymakers, hospitals had become inefficient under the influence of cost reimbursement. Therefore, they believed that costs could be reduced without significant adverse effects on access to care or the quality of care.

Creating Appropriate Financial Incentives

The development of appropriate financial incentives under PPS is based on a set of five principles. These are that: (1) payment rates are set in advance of the period to which they apply, (2) hospitals are required to accept the rates as full payment, (3)

rates are set on a per-case basis with a different rate for each DRG, (4) differences between a hospital's costs and the payment rate for individual cases are expected to balance out over all cases in a DRG, and (5) separate payment policies are applied for extraordinary patients.

Basic Incentives of Per-Case Payment—Setting the payment amount in advance and requiring hospitals to accept it as full payment creates financial incentives for hospitals to control treatment costs for Medicare beneficiaries. Each hospital is placed at risk for the difference between its costs and payments. Hospitals that incur costs that are higher than their payments will suffer losses, while those that hold costs below their payments are allowed to keep the profits. Consequently, it was believed that hospital management would have a strong incentive to keep Medicare costs down.

The third principle is that the payment rates are set on a per-case basis, with a separate rate for each type of Medicare patient. Patient categories are defined by the diagnosis-related groups patient classification system. Each of the 474 DRG categories is intended to define a group of patients with similar clinical conditions and similar needs for inpatient resources.

Payment on the basis of a per-case rate for each DRG is intended to create specific financial incentives that encourage hospital management to adopt desirable methods of controlling the cost of care. It was hoped that hospital management, facing a separate payment rate per discharge for each DRG, would have strong incentives to: (1) improve productivity; (2) use less expensive inputs where possible; (3) influence physicians to reduce the length of stay, limit the volume of inpatient services, and use a less expensive mix of services to treat each patient; (4) specialize in treating types of cases the hospital can produce efficiently; and (5) adopt cost-reducing technologies, while avoiding cost-increasing technologies.

Limiting Undesirable Incentives of Per-Case Payment—The design principles of averaging and special payment policies for extraordinary patients are intended to limit the impact of undesirable incentives associated with DRG-specific, per-case payment. It was argued that hospitals could have a financial incentive to provide too few services.

This incentive could be especially strong for relatively seriously ill patients in a DRG who are likely to require more services than the payment rate would cover.

To minimize these potential negative effects, PPS relies on the principle of averaging. Other things being equal, if the payment rate for each DRG is based on the national average cost per case for all cases in the category, hospitals would be expected to make profits on relatively low-cost cases, but lose money on relatively high-cost cases. On average, these individual gains and losses would balance out for each hospital under most circumstances. Therefore, policymakers believed that hospitals would have less overall financial incentive to reduce services. The extent to which averaging is effective, however, is a continuing source of concern to the Commission.

The incentive to provide too few services is mitigated by the value that hospitals place on the provision of high-quality care and on their ability to attract physicians and patients. It is generally believed that few hospital managers or physicians would compromise quality to increase profits or reduce losses. Further, Congress mandated that the Peer Review Organizations (PROs), established in 1982, would monitor quality of care.

Finally, policymakers recognized that this approach still might create undesirable financial incentives regarding the treatment of extraordinary patients. To limit the impact of these incentives, the fifth principle of PPS provides for development of special payment policies for certain Medicare patients. These are patients who are transferred to another hospital or have extremely long lengths of stay or extraordinary costs of care.

Lengths of stay, service use, and costs for transfer patients tend to be lower than for other patients in the same DRG. If these cases were paid at the full DRG rate, hospitals would have an incentive to transfer too many patients. To limit this incentive, transfers are paid on the basis of a per diem rate from the date of admission to the date of transfer.

The opposite situation arises with outlier cases. These are patients with extremely long inpatient stays or extraordinarily high costs. The problem is that financial losses on these cases are so large that

hospitals cannot offset them with gains from low-cost cases in the same DRG or other DRGs. For these cases, the principle of averaging does not work.

Without a special payment policy, hospitals that treat such cases would be penalized financially. Consequently, they would have a strong incentive to avoid or transfer any patient who is likely to become an outlier. This could reduce access to care for certain severely ill Medicare beneficiaries. To moderate this incentive, extra payments are made for cases that qualify as outliers. These payments are financed by an across-the-board proportionate reduction in all DRG payment rates.

Implementation and Mechanics of Basic Rate-Setting Principles

Together, these five principles were designed to create a balanced set of incentives. In practice, however, the actual incentives hospitals face depend on the methods and data used to implement these principles.

The Mechanics of Payment Rate Determination—Under PPS, each hospital is paid a separate fixed payment rate per case for each DRG. Each DRG-specific payment rate is determined by the product of two components: a base payment amount and a relative weighting factor for the particular DRG.

The base payment amount is intended to represent the national average cost of treatment for a typical (average) Medicare case. It is based on Medicare costs reported by hospitals for cost reporting periods ending during 1981, updated to the year of payment by an annual update factor.

The weighting factor for each DRG represents the estimated relative cost of treatment for an average Medicare case in the particular DRG compared with the national average cost of treatment for all Medicare cases. The weighting factors are based on charges for covered inpatient services provided to Medicare beneficiaries, as reported on bills submitted for payment by all PPS hospitals.

The weights are given as index numbers, such as 0.5384 for a low-cost DRG, or 7.6291 for a costly

DRG. A single national set of DRG weights is applied for all hospitals. A hospital's set of DRG-specific payment rates is determined by multiplying all the DRG relative weights by the applicable base payment amount.

Potential Technical Refinements—Despite its complexity, implementation of the DRG system has proceeded satisfactorily, and the system has gained acceptance within the hospital industry. Moreover, ProPAC believes that PPS has worked reasonably well to create the financial incentives that policymakers intended. In addition, PPS has been modified to include a number of important refinements.

Nevertheless, the Commission believes that further improvements are possible. For example, a per-case payment system like PPS carries the inherent risk that the payment rates may dilute or distort some incentives. This may occur if the DRG relative weights differ from hospitals' average relative costs of treatment in each DRG. Therefore, the clarity and appropriateness of the incentives PPS creates for hospitals to reduce costs in particular DRGs, to specialize in the treatment of particular types of cases, and to adopt or avoid particular new technologies depend on the accuracy and specificity of the relative weights. In addition, the accuracy and specificity of the DRGs and the relative weights also affect the distribution of PPS payments among hospitals.

The function of setting the relative weights, called case-mix measurement, has three components. These are: (1) the definitions of the DRGs, (2) the clinical and demographic information used to assign patients to each DRG category, and (3) the methods and data used to estimate a relative weight for each DRG. The Commission has identified potential refinements regarding each of these components.

All patient classification systems have limitations, and the DRGs are no exception. ProPAC has recommended, and the Secretary has funded, research projects to improve the DRGs and to develop alternative patient classification systems. Recently, specific improvements to the DRG definitions have been proposed. The Commission believes these revisions should be carefully and fully evaluated as soon as possible.

The specificity of the DRGs and of potential refinements are frequently limited by the inability of the current coding system to identify clinically significant differences among patients with a given illness or diagnosis. In this regard, the Commission believes coding for a number of diagnoses is too broad to permit differentiation among patients with varying levels of resource needs. Moreover, additional work is needed to strengthen current procedures for updating the coding system to reflect changes in technology and medical practice patterns. These issues are discussed more fully in Chapter 2 of this report.

The Commission also continues to believe that further refinements can be made to the methods and data used to establish the relative weighting factors. In its March 1988 report, ProPAC recommended setting the relative weights on the basis of the estimated average standardized cost per case in each DRG, in lieu of the average standardized charge per case now in use. This recommendation was made in the belief that standardized charges tend to overstate the amount of variation in average resource costs per case among the DRGs. This recommendation has not yet been adopted.

Major improvements in outlier policy were implemented in 1989. However, further refinements may be possible by changing the current method of financing outlier payments. Extra payments for cases with extremely long stays or extraordinarily high costs are financed by an across-the-board reduction in all DRG payment rates. Extensive research has shown, however, that the incidence of outlier cases and payments varies widely among the DRGs. This may affect the accuracy of the relative weights for DRGs with either a very high or a very low percentage of outlier cases. The Commission will continue to study the potential impact of outlier financing methods on the DRG weights.

ProPAC recognizes that some of these issues are quite complex. However, the Commission believes further refinements may be necessary to avoid sending undesirable signals to hospitals. These concerns will become even more important if the overall level of financial pressure on hospitals continues to increase.

Potential Payment Inequities—The principles of per-case payment were adopted to create appropriate financial incentives for hospitals to control the cost of inpatient treatment for Medicare beneficiaries. Policymakers hoped to reward hospitals for efficiency and penalize them for inefficient behavior. However, they also recognized that this will not be possible unless the payment rates for individual hospitals are adjusted appropriately to account for differences in factors (other than management efficiency) that affect hospitals' costs. Therefore, the design of PPS includes a set of payment rate adjustments that allows for differences among hospitals in the mix of outputs they produce and in local economic conditions. Through these adjustments, PPS attempts to ensure that the financial risks imposed on hospitals are appropriate and reasonably within the control of hospital management. These features also help to ensure equitable treatment of all hospitals, Medicare beneficiaries, and geographic areas.

ENSURING AND MAINTAINING PAYMENT EQUITY

In this section the Commission discusses the payment adjustments and other PPS policies designed to recognize that hospitals produce different mixtures of services under a wide range of local economic and social conditions. This is followed by a discussion of PPS policies regarding the problem of updating the payment rates over time.

Principles and Design Issues

Hospitals differ in the mix of patients and in the mix of other outputs they produce, such as medical education and training. Hospitals also produce these outputs under varying local conditions, such as prevailing wage levels for hospital workers. These factors affect hospitals' costs of furnishing inpatient care to Medicare beneficiaries.

In setting PPS payment rates, failure to recognize these factors would create inappropriate variations in the amount of financial risk hospitals face under Medicare. Moreover, some hospitals would be rewarded, while others would suffer financial losses due to factors beyond their control. These inequities could eventually lead to undesirable variations in access to and quality of care.

To avoid these potential outcomes, Congress included a set of payment adjustments, exceptions, and exclusions in the design of PPS. These policies are based on four principles that identify hospital circumstances and local conditions PPS should allow for: (1) the multiproduct nature of hospital output, (2) the impact of local economic and social conditions beyond a hospital's control, (3) the implications of certain extraordinary circumstances, and (4) the limitations of current PPS payment methods for certain types of hospitals and for certain components of hospital costs.

To a large degree, these principles reflect policy-makers' beliefs regarding the appropriateness of various sources of historical variation in the cost of inpatient care. They also reflect judgments about the degree to which differences in service utilization are within hospitals' control. Acute care hospitals pursue generally similar goals using similar technologies and resources. However, their average costs per case within each DRG may differ for several reasons. Hospitals produce varied mixtures of other outputs, such as teaching and research, in addition to inpatient care. Hospitals located in different areas face different prices for the goods and services they must purchase to provide inpatient care. In addition, the quantities and mixtures of inpatient services provided per case vary among hospitals and geographic areas. Finally, hospitals differ in the quantities and mixtures of labor and other resources they use to produce individual services.

The Multiproduct Nature of Hospital Output

Hospitals differ substantially in the mix and complexity of the cases they treat, and in the other outputs they produce, such as teaching and research. The design of PPS includes specific payment adjustments to allow for the cost implications of these differences.

Medicare Case Mix—Under a DRG-specific, per-case payment system like PPS, payments to hospitals are adjusted automatically to allow for differences in the expected costs of treatment due to variations in the mix of Medicare cases. However, as the Commission noted in the section on PPS incentives, the effectiveness of this adjustment depends on the accuracy and specificity of the DRGs and the relative weights.

Ensuring that the distribution of PPS payments accurately reflects the impact of variations in Medicare case mix is a major responsibility of the Commission. The DRG patient classification system continues to provide an adequate basis for hospital case-mix measurement. However, ProPAC believes that significant improvements are possible. In Chapter 2, the Commission again recommends improvements in the case-mix measurement system, including the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis and procedure coding system, the foundation for DRG definition and patient assignment.

Hospital Teaching Activity—Some hospitals also operate graduate medical education and training programs. These activities generate additional direct costs, such as salaries and fringe benefits for teaching and support staff and residents. Teaching programs also may affect costs indirectly through differences in the range of services and technologies offered, in the average severity of illness of the patients admitted, and in service utilization patterns. As a result, hospitals engaged in teaching and research may provide a greater volume and a more expensive mix of services per case. Therefore, the average cost per case may be higher in these hospitals than in otherwise similar institutions.

PPS recognizes the indirect costs of medical education programs by applying a hospital-specific percentage adjustment to each teaching hospital's total DRG payments. This is called the indirect medical education (IME) adjustment. The size of the adjustment varies according to the intensity of the hospital's graduate medical education activities. The direct costs of teaching programs are excluded from PPS and paid on a separate, prospective basis.

Congress has consistently taken the position, and ProPAC agrees, that the Medicare program should continue to pay for its share of medical education costs. Nevertheless, the Commission plans to continue to examine the level of this adjustment. A recommendation for further improvements in the indirect medical education adjustment is included in Chapter 2.

Serving a Disproportionate Share of Low-Income Patients—Another aspect of a hospital's mix of cases and hence its output arises from

differences in the socioeconomic characteristics of the patient populations served within an area. Research undertaken by ProPAC and by the Congressional Budget Office showed that hospitals serving a disproportionate share of low-income patients tend to have higher costs for Medicare cases than otherwise similar hospitals. Congress responded by creating a percentage add-on adjustment that is applied to the total DRG payments of qualifying hospitals.

The size of this adjustment is generally based on the sum of two components. The first is the share of the hospital's Medicare patient days furnished to patients who are also eligible for benefits under the Supplemental Security Income program. The second is the share of the hospital's total patient days provided to Medicaid beneficiaries. However, the adjustment also differs according to the hospital's bed size and its location in an urban or a rural area. In addition, hospitals that receive more than a certain percentage of their total patient revenues (excluding Medicare and Medicaid payments) from state and local government appropriations for indigent care are given a fixed percentage adjustment.

The Commission believes that both the indirect medical education and disproportionate share adjustments are achieving the purposes for which they were intended. These adjustments, however, interact with each other and with other components of the payment formula. In addition, the underlying factors explaining the observed differences in costs for these hospitals are poorly understood. Therefore, the Commission plans to continue to evaluate the appropriate level of these adjustments and the impact of the interactions between them.

Local Economic and Social Conditions

Hospitals' costs also may vary due to differences in the economic and social conditions of their communities. The design of PPS includes payment adjustments to allow for some differences in local conditions. However, these adjustments are limited to factors that are readily measurable and are clearly and directly related to variations in hospital costs among communities.

Variations in Input Prices—The unit prices a hospital must pay to purchase inputs, such as labor and supplies, differ from one local market to

another. Variations in wages and fringe benefits for hospital workers may affect as much as 75 percent of a hospital's costs. Therefore, if other things were equal, a hospital located in a labor market area where unit labor rates are 10 percent above the national average would be expected to have costs per case approximately 7.5 percent above the national average.

PPS recognizes geographic differences in wages and salaries for hospital workers. The DRG payment rates are adjusted based on a wage index that measures the relative level of hourly wages for hospital workers in each labor market area compared with the national average hospital hourly wage. This adjustment is the single most important factor affecting the distribution of PPS per-case payments among hospitals. Therefore, the Commission has devoted substantial resources to evaluating the accuracy of the labor market areas and the construction of the wage index. Based on this analysis, ProPAC believes that improvements are necessary in the definition of hospital labor market areas and in the data used to calculate the wage index. The Commission has recommended specific improvements previously and is again making a recommendation this year.

Variations in prices for other goods and services, such as food, medical supplies, fuel, electric power, and insurance, appear to be much smaller and less important. The Commission's examination of variations in non-labor prices, however, has been hampered by the lack of data at the local level.

Variations in Other Local Conditions—Hospitals' costs also may vary in response to a variety of other local circumstances. For example, hospital costs may be affected by the social and economic characteristics of the population residing in each area. Differences in population characteristics may result in variations in the average length of hospital stays and in patient needs for additional services, such as social services and discharge planning. Moreover, these effects may differ among the hospitals within an area because they serve distinct subgroups of the local population.

Unexplained factors, such as variations in medical practice patterns, also contribute to differences in hospital costs among areas. Similarly, the availability of other health services and resources, such

as outpatient care, skilled nursing facility care, and the number and specialty mix of physicians, varies among geographic areas. As a result, hospitals located in different areas draw on widely different resources to meet patient needs. These variations in community resources may account, at least in part, for variations in length of stay and service intensity patterns observed among areas.

However, these factors are not readily measurable for all geographic areas. In addition, the relationships between these factors and hospital costs are not well understood.

Differential Standardized Payment Amounts— Policymakers responded to these uncertainties by attempting to provide rough justice in the treatment of different geographic areas. It was initially thought that if the DRG rates were set using a single national average standardized payment amount, then urban hospitals would be penalized because of their relatively higher operating costs. On the other hand, rural hospitals, with much lower average costs per case, generally were expected to make large financial gains.

To avoid these outcomes, Congress decided to establish separate standardized payment amounts for urban and rural areas based on the historical average cost experience of each group. This policy appears to have favored urban hospitals relative to rural hospitals. Congress and the Commission have repeatedly revisited this issue over the last few years, using differential annual updates and other policy changes to reduce the payment differential between the two groups. This year, the Commission is recommending that the difference between the urban and rural standardized amounts be phased-out over a three-year period.

Policymakers also have raised the issue of payment inequities among urban areas. Under PPS, large urban areas are defined as Metropolitan Statistical Areas (MSAs) with a resident population of 1 million or more persons. Other urban areas include all other MSAs. Historically, hospitals located in large urban areas have experienced higher Medicare operating costs per case than hospitals located in other urban areas. This holds true even after accounting for differences in case mix, teaching activity, disproportionate share status, and local

hospital wage levels. Although a single standardized payment amount was originally applied in all urban areas, Congress later created distinct payment amounts for large urban areas and other urban areas.

Currently, hospitals located in large urban areas receive a higher standardized payment amount than hospitals located in other urban areas. The Commission is reexamining the advisability of maintaining separate urban payment amounts. Rather than recognizing unexplained cost differences through separate urban and rural standardized payment amounts, it would be preferable to identify and adjust for specific local market factors as appropriate. ProPAC believes this can be accomplished through improvements in current adjustments like the DRGs and the wage index or, if necessary, the development of new adjustments.

Recognizing Extraordinary Circumstances

Congress recognized that two specific groups of hospitals might be unfairly treated by PPS: rural referral centers and Sole Community Hospitals (SCHs). Rural referral centers are generally larger rural hospitals that serve a more costly mix of Medicare patients and treat patients referred from other rural hospitals. Consequently, these hospitals may provide a volume and mix of inpatient services more like those of urban hospitals. Rural referral centers are paid according to the standardized payment amount for other urban hospitals.

Sole Community Hospitals are generally located in isolated areas and represent the sole source of inpatient care reasonably available to residents of the immediate area. These hospitals also tend to be small and are believed to be especially vulnerable to the financial impact of wide fluctuations in local demand for inpatient care. Under PPS, they are paid largely on the basis of their own historical cost experience and only partially on the basis of PPS payment rates. In addition, an SCH is eligible for an adjustment to its Medicare payments if its total volume of admissions decreases by more than 5 percent in a year.

The Commission is examining the problems of referral centers and Sole Community Hospitals and will comment further as this work proceeds.

Recognizing the Limitations of PPS

Policymakers also recognized that PPS could be inappropriate for certain types of hospitals and for certain components of hospital costs.

Excluded Hospitals—Hospitals or distinct-part units primarily organized to provide psychiatric, rehabilitation, pediatric or long-term services were excluded from PPS. In addition, hospitals located in outlying geographic areas (Puerto Rico, the Virgin Islands, Guam, and the Trust territories) were excluded. Congress subsequently enacted a modified version of PPS for hospitals located in Puerto Rico. The remaining hospitals continue to be paid based on their costs of providing services to Medicare beneficiaries, subject to the target rate of increase limits established in TEFRA.

Hospitals located in states with approved state hospital reimbursement systems also were exempted from PPS. These hospitals are paid for inpatient services rendered to Medicare patients under the state's reimbursement system. Initially, hospitals in New York, New Jersey, Maryland, and Massachusetts were exempted under this policy. Currently, however, only hospitals located in Maryland and in the Rochester area of New York State are paid under alternative state reimbursement systems.

Excluded Components of Costs—In addition, certain components of costs were excluded from the calculation of the standardized payment amounts. Capital costs (rent, interest, depreciation, and certain insurance costs) and certain other costs, such as those for organ acquisition and services provided by certified registered nurse anesthetists, are excluded from the calculation of the standardized payment amounts and, therefore, from the DRG payment rates. These costs are reimbursed separately on the basis of Medicare's share of the actual costs incurred.

Congress excluded capital costs because they vary among hospitals in a manner that is largely unrelated to the hospital's case mix or other factors that affect total DRG payments. Instead, these costs depend on factors such as the number of years elapsed since the hospital completed its most recent large investment project, the extent to which

the project was financed by borrowed funds, and the level of interest rates.

To avoid penalizing hospitals with large recent capital investment projects, Congress excluded capital costs pending development of an acceptable method for including them in the DRG rates. However, payment of capital costs on the basis of incurred costs also creates financial incentives for hospitals to substitute capital for labor and other resources in the production of patient care. Ultimately, this could result in reduced efficiency.

Both the Secretary of HHS and the Commission have recommended methods for including capital costs in the DRG payment rates. Until now, however, Congress has rejected these proposals. Current law requires the Secretary to include payments for capital costs in the DRG payment rates, starting with hospital cost reporting periods beginning during fiscal year 1992. Similar provisions have been included in prior law, but Congress has not allowed them to take effect. Therefore, it is not clear that current law will be implemented as scheduled. In the meantime, capital costs generally are reimbursed on the basis of 85 percent of Medicare's share of the hospital's incurred costs.

The Current PPS Payment Formula

Under these policies, the current payment formula contains numerous features designed to improve the distribution of payments among hospitals. Each hospital is paid a separate fixed payment rate per discharge in each DRG. While the PPS payment rates are based on national average standardized amounts and national average DRG weights, the level of the rates differs substantially from hospital to hospital.

One of the original aims of those who designed PPS was to simplify the way Medicare paid hospitals. The current system is far from simple. Nevertheless, the Commission believes that ensuring payment equity is essential to controlling increases in hospital costs while maintaining access to high-quality care.

However, hospitals are still experiencing wide variations in financial performance under PPS. The Commission continues to examine this subject and

the extent to which further improvements in patient classification, calculation of the wage index, or other adjustments may be needed.

Adjusting the Payment Rates Over Time

The final major problem in the design of PPS is how to adjust the level and distribution of payments to respond appropriately to changes in economic conditions. Policymakers anticipated that key features of the payment system would need to be revised as technology, practice patterns, and other economic conditions change over time. The design of PPS includes specific adjustment mechanisms that provide for an annual update of the standardized payment amounts, the definitions of the DRGs and the relative weighting factors, and periodic updating of the area wage index. Revisions of other features of PPS, such as the outlier payment policy and the medical education and disproportionate share adjustments, have been undertaken as problems have been identified.

The Annual Update Factor

In the original statute, Congress provided for updating the payment rates annually through an update factor applied to the standardized amounts. The update factors for the first two years (fiscal year 1984 and fiscal year 1985) were set in the law. They were based on the projected increase in the hospital market basket index plus an allowance for the impact of scientific and technological advances. The market basket index measures changes in the prices of the goods and services hospitals must purchase to provide inpatient care. The allowance for scientific and technological advances was originally set at one percentage point for both years, but later reduced to one-quarter of one percentage point for fiscal year 1985.

Update factors for succeeding years were to be set by the Secretary through the regulatory process, taking into account the recommendations of ProPAC. In practice, however, Congress has enacted an update factor for each year. The Commission has continued to make its annual recommendations to the Secretary, and Congress uses ProPAC's analyses and recommendations along with similar advice from the Secretary to make the final judgment.

The annual update factor is intended to adjust hospitals' DRG payments per case for changes in factors that are expected to affect the cost of efficiently providing inpatient care to Medicare beneficiaries during the coming year. In developing its recommendations, ProPAC is required to take into account the need to maintain the quality of care and to promote efficiency in the production of inpatient care.

To make these judgments, the Commission divides the update into two components: projected increases in the market basket index, and all other factors relevant to updating the payment rates.

Updating for Changes in Input Prices—Inflation in the prices hospitals must pay for the resources they need to furnish inpatient care would be expected to raise their average costs per case. Therefore, the DRG payment rates should be adjusted to reflect the projected increase in the market basket index. Over the years, the Commission has recommended and the Secretary has adopted numerous improvements in the market basket to measure input price changes more accurately.

Updating for Other Factors—Changes in other factors may positively or negatively affect average costs per case. The effects of these factors are incorporated into the annual update by adding to, or subtracting from, the projected increase in the market basket index. Technological and scientific advances, for example, are generally expected to increase the average cost of care. Improvements in hospital productivity are expected to have the opposite effect. Thus, a positive adjustment is generally provided to allow for the expected impact of scientific and technological change. A negative adjustment is provided to reflect the Commission's judgment regarding achievable goals for productivity improvements in the industry.

Changes in hospital utilization behavior also may affect hospitals' average costs per case. For example, shifting services, such as diagnostic tests previously provided during an inpatient stay to other sites of care, would be expected to reduce the cost of care. In the early years of PPS, these effects were addressed through appropriate adjustments to the update factor. More recently, however,

the Commission has indicated that such an adjustment is no longer necessary.

Offsetting Changes in Case Mix—Finally, the Commission considers the impact on DRG payments of expected changes in the mix of Medicare cases reported by hospitals. Under PPS, hospitals' average per-case payments increase automatically if the reported mix of Medicare patients shifts toward DRGs with higher relative weights. Such shifts are reflected in increases in the Medicare case-mix index (CMI), which measures the average relative weight per case.

However, increases in the case-mix index may be caused either by a real shift in the types of Medicare patients treated, or by changes in hospital recordkeeping and reporting practices that affect the assignment of cases among the DRGs. Real changes in case mix would be accompanied by real changes in average costs per case. Changes in case mix due to reporting practices, however, would not affect costs per case. To the extent that increases in payments arise from changes in reporting practices, DRG payments would be artificially inflated above the level necessary for efficient treatment. Therefore, the expected increase in payments due to reporting practices is deducted in arriving at an overall update recommendation for the coming year.

Changes in Service Intensity—In the first year of PPS, hospitals significantly reduced the number of services provided per case to Medicare beneficiaries. Subsequently, however, the volume of services furnished per case has increased. One of the Commission's most difficult decisions is to determine how much of this increase in intensity of services should be recognized through higher update factors. ProPAC believes that increased intensity of services related to real changes in the mix and the complexity of patients within each DRG should be recognized through a higher update factor. However, the Commission has continued to recommend that additional costs associated with new medical advances generally should be financed by improvements in hospital productivity.

The Commission is aware of the difficulties hospital management faces in controlling the growing use of services by physicians. Nevertheless, to achieve the goals of PPS, ProPAC thinks it is

necessary to continue to provide strong financial incentives to ensure that hospitals and physicians furnish only those services that are necessary to provide high-quality care.

In the first few years of PPS, the same update factor was applied to the base payment amounts for both urban and rural hospitals. In addition, this update factor was used as the target rate of increase allowed for hospitals excluded from PPS. More recently, differences in the experience of these hospital groups have led the Commission to recommend and the Congress to adopt differential annual updates for each group. In addition, Congress has provided a slightly higher update for hospitals located in large urban areas.

Updating the DRG Relative Weights

Applying the relevant annual update factor to the standardized payment amount for a group of hospitals results in a proportional increase in the per-case rates for all DRGs for those hospitals. Policymakers understood, however, that changes in technology and practice patterns could alter the relative use of resources among the DRGs. They also recognized that the DRG patient classification system and the underlying diagnosis coding system (ICD-9-CM) were imperfect. Therefore, they provided mechanisms for periodic revision of the DRG definitions and the DRG relative weights.

In the original statute, the Secretary was required to adjust the DRG definitions and the relative weights at least every four years. Based on the Commission's recommendation, subsequent legislation requires annual revision of the DRG definitions and annual recalculation of the DRG relative weights. As a result, the DRG definitions are revised each year to address patient classification issues raised by ProPAC, the hospital industry, or other interested parties. The relative weights are recalculated each year using the most recent billing data available at the time. These changes generally result in more accurate and equitable payments among DRGs and hospitals.

Updating the Wage Index

Updates and revisions to the hospital area wage index were initially left to the discretion of the Secretary. However, a number of flaws in the wage

data and in the construction of the index soon became apparent. Consequently, the Secretary was required to obtain new hospital wage data and to implement a new wage index.

In recent legislation, Congress required the Secretary to update the wage index for fiscal year 1991 and at least every three years thereafter. To meet this requirement, HHS has implemented a survey to collect 1989 data on hospital wages and hours and fringe benefit costs.

By incorporating these features in the design of PPS, policymakers attempted to ensure that the DRG payment rates would be adjusted to reflect changes in technology, practice patterns, and other economic conditions. Appropriate financial incentives and equity of treatment, therefore, could be maintained over time.

In the next section, the Commission assesses the overall performance of this design. In making this assessment, ProPAC believes it is important to recognize that a solution to one problem may create other problems, which then must be resolved. Many of the potentially undesirable consequences of PPS result from design considerations and methods of PPS that policymakers believed were necessary to achieve important but somewhat conflicting goals. As these consequences are identified, other adjustments must be made to restore payment equity and to ensure that Medicare beneficiaries continue to have access to high-quality care.

OVERALL DESIGN AND PERFORMANCE OF PPS

After six years of operation, the Commission believes that PPS has partially met its key goals. During this period, the rate of increase of Medicare expenditures for hospital inpatient care has slowed dramatically, although the growth of expenditures for outpatient services has continued unabated. In addition, PPS reduced the rate of increase in hospitals' Medicare costs per case, especially during its first year. While hospitals' Medicare costs are still increasing rapidly, the rate of increase in program spending for inpatient care appears to be lower than it otherwise would have been under the old cost reimbursement policy.

These outcomes have been achieved without discernible serious effects on Medicare beneficiaries' access to inpatient care or on the quality of the inpatient care they receive. Clearly, much more research is needed to improve measurement of access to care and the quality of care. Since the introduction of PPS, however, the Commission has not found evidence of substantial or systematic changes in either dimension of inpatient care for the Medicare population.

Nevertheless, in other respects, the results to date are somewhat mixed. PPS has not always produced the kind or magnitude of effects that policymakers anticipated. Some of the observed trends in hospital behavior were not expected. Other responses to PPS have been uneven.

The Impact of PPS Incentives on Hospital Costs

Policymakers intended that PPS would lower the rate of increase of hospitals' Medicare costs and control the growth of program expenditures by creating financial incentives for hospitals to use inpatient resources more efficiently. The underlying assumption was that hospital management would respond to these incentives by improving hospital productivity. In addition, management was expected to be able and willing to influence attending physicians to reduce the volume of inpatient services or use a less costly mix of services in treating Medicare patients.

The Commission believes that PPS has created the intended financial incentives. Hospitals responded strongly to those incentives in the first year of PPS by reducing employment, changing the mix of staffing, and improving productivity. They succeeded in reducing the average length of stay for Medicare patients by far more than the historical trend, even though relatively short-stay types of cases were increasingly being treated in other settings. In addition, they were able to influence physicians to shift some services previously provided on an inpatient basis, such as diagnostic tests, to other sites of care.

These changes dramatically reduced the rate of increase of hospitals' Medicare costs per case during the first year. However, these responses diminished rapidly, virtually disappearing by the

third year of PPS. Consequently, the rate of increase in hospitals' Medicare costs per case quickly returned almost to previous levels.

The Commission believes this pattern of response occurred for several reasons. Hospital management's initial response was based on the expectation that PPS would create strong financial pressure. However, the actual payment rates in the early years of PPS were generally well above the level of most hospitals' Medicare costs. As a result, most hospitals faced little financial pressure to continue to respond during the next few years. Moreover, the Medicare program accounts for less than one-half of total inpatient revenues for most hospitals. Therefore, the influence of PPS incentives may have been diluted by conflicting financial incentives created by other payers. Perhaps most important, hospitals face many other pressures to expand the scope and sophistication of the services they offer. When financial pressure is low, PPS payment incentives may simply be overwhelmed by other more immediate forces.

The Commission does not believe this analysis should be alarming. PPS payment rates have been declining relative to most hospitals' Medicare costs per case. Both the financial pressure on hospitals and the strength of PPS incentives have been increasing over the last several years. Therefore, it could be argued that PPS has just reached the point where its impact should begin to be felt.

The data needed to evaluate the extent and the nature of more recent hospital responses are not yet available. According to some recent analyses of earlier data, however, hospitals that had relatively high Medicare costs compared with their PPS payment rates experienced lower rates of increase in costs than hospitals that were relatively well-off under PPS. The means these hospitals used to control costs, whether through improving productivity or encouraging physicians to eliminate services they otherwise would have provided, remain unclear. Consequently, the degree to which the key behavioral assumptions of PPS hold true is uncertain.

In the Commission's view this issue is crucial to understanding whether and to what extent PPS can continue to meet its goals in the future. Therefore,

continued research in this area will remain high on ProPAC's analytic agenda.

Trends in Admissions and Expenditures for Inpatient Care

Because PPS is a per-case payment system, changes in the volume of Medicare hospital admissions have a major impact on both Medicare spending and hospital financial condition. Much of the reduction in the rate of increase of Medicare expenditures for inpatient care is due to declines in Medicare admissions that occurred during the first four years of PPS.

The Commission believes these declines are attributable to several factors. PPS was implemented in the middle of a period of generally falling hospital utilization. ProPAC analyses have shown that admissions began to decline among the population under age 65 in 1982. Admissions of Medicare patients continued to increase slowly until 1984, when they fell for the first time. However, admissions for the population under age 65 have continued to decline at significant rates.

Although the threat of PRO review may have contributed to the Medicare experience, it cannot account for changes in hospital utilization among the non-Medicare population. Other payers, however, also have introduced more stringent utilization review procedures. The Commission believes that declines in admissions for both groups reflect a combination of changes in medical technology, which permitted treatment of many patients in outpatient and ambulatory sites of care, and changes in coverage and payment policies for these services.

Financial Effects of Declining Hospital Utilization

Although the decline in Medicare admissions reduced the rate of growth of Medicare expenditures for inpatient care, the Commission is concerned about other effects of this trend. Because PPS is a per-case payment system, a hospital's PPS payments tend to fall roughly in proportion to its decrease in Medicare admissions. However, the hospital's Medicare costs may not decline as much

as its payments. This may occur because the hospital is slow to respond to an unanticipated decrease in admissions. Alternatively, hospitals may not be able to adjust staff levels and fixed costs in proportion to the change in revenue.

Similarly, a hospital's costs for treating Medicare patients can be affected by changes in the patterns of care for other patient groups. For example, a hospital's Medicare costs will tend to increase when admissions of non-Medicare patients decline, even if its Medicare admissions remain constant.

In either case, both the amount of financial risk and the strength of the financial incentives experienced by a hospital under PPS may increase when its volume of Medicare and non-Medicare admissions declines. This problem may be exacerbated if the hospital is small or the decline in admissions is very large.

The Commission is concerned that PPS may impose especially heavy penalties on hospitals that have experienced large declines in patient volume. For example, payment rates for rural hospitals were calculated on the basis of Medicare costs reported by those hospitals during 1981. Thus, they reflect the volume of admissions of Medicare and other patients treated during that year. From 1981 to 1987, however, total admissions to rural hospitals have declined, on average, about 6 percent annually. The average rate of decline is even greater for small rural hospitals (those with fewer than 50 beds).

In recent years, the Commission has recommended and Congress has granted higher annual updates for rural hospitals. Moreover, other policy changes have been made to improve the adequacy of PPS payments to such hospitals. However, most of these policy changes have increased PPS payments uniformly for all rural hospitals. ProPAC remains concerned that large declines in admissions may have had an especially adverse impact on the financial viability of some rural hospitals.

Hospital Closures and Access to Inpatient Care

A related problem is that increasing numbers of small and rural hospitals have closed in recent

years. There is widespread concern that continuation of this trend may threaten access to care or the quality of care received by Medicare beneficiaries. In response to this concern, ProPAC has undertaken an ongoing analysis comparing hospitals that have closed with similar hospitals that have remained open. This analysis suggests that hospital closures to date generally have occurred among hospitals with extremely low occupancy rates. In many instances, hospital closures have occurred in communities served by several other hospitals. Therefore, most closures have had little or no effect on access to care for Medicare beneficiaries.

Research funded by the Commission also has examined the per capita hospital usage patterns of Medicare beneficiaries living in rural areas during the first three years of PPS. At that time Medicare admissions to small and rural hospitals were declining rapidly. The per capita use rates of both urban and rural beneficiaries declined somewhat during this period. Yet there is little indication that beneficiaries in rural areas experienced a significant loss of access to inpatient care. Population-based admission rates for high-technology services increased during the period for these beneficiaries, but much of this care was obtained in urban hospitals. Moreover, rural beneficiaries' per capita use rates for other types of services generally remained higher than comparable rates for beneficiaries living in urban areas in the same states.

These results suggest that the declines in Medicare admissions to small rural hospitals that have occurred so far represent changes in the site of care and shifts in the pattern of rural hospital usage by Medicare beneficiaries. ProPAC has not found evidence to indicate that access to care or the quality of inpatient care have decreased for these beneficiaries. Additional study is necessary, however, to understand better the ongoing pattern of hospital closures, the availability of alternative services, and the impact on access and quality of care for Medicare beneficiaries.

Variations in Hospital Financial Performance

A related issue is raised by the wide variability of financial outcomes under PPS. In designing PPS, policymakers recognized that hospitals' costs would vary in response to a number of factors

other than management efficiency. The factors they identified included the mixture of outputs hospitals produce and the variety of local circumstances in which they operate.

Some factors in the local environment, however, are not considered in determining PPS payments because they are difficult to measure or their relationship to hospital costs is not well understood. For example, the socioeconomic characteristics of the local population and the availability of other health services and resources may account for some of the variation in hospital costs observed among areas. These factors may explain some of the historical differences in costs between urban and rural hospitals. On average, hospitals located in rural areas consistently have had Medicare inpatient operating costs per case roughly 40 percent lower than those of hospitals located in urban areas. While a substantial portion of this difference is explained by factors that PPS recognizes, such as differences in case mix, local wage levels, and teaching activity, some of the difference is attributable to other factors.

These factors create problems for two reasons. First, it is difficult to measure and understand the complex relationships between the demographic and socioeconomic characteristics of communities and the utilization and cost experience of the hospitals that serve them. Second, it is even more difficult to measure the relationship between observed service utilization and cost patterns and quality of patient care. Consequently, it is difficult to identify specific factors that could be used to

adjust the DRG payment rates appropriately to reflect differences in community characteristics.

The Commission believes that the adequacy of the current payment adjustments remains one of the central policy dilemmas of PPS design. Congress and ProPAC have repeatedly revisited this issue over the last few years, using differential annual updates and other policy changes to attempt to fine-tune these adjustments. Yet the wide variability of hospital financial performance under PPS suggests that the current set of payment adjustments does not capture some key sources of cost variation. The Commission believes that resolution of this problem is crucial to the continued ability of PPS to meet its most important goals. Therefore it will have a prominent position on ProPAC's future analytic agenda.

Continuing to Improve PPS

The Commission believes that PPS has partially met its main goals. The move from cost reimbursement to prospectively determined per-case payment rates created financial incentives for hospitals to control the costs of care. In the early years, these incentives were relatively weak because the PPS payment rates were higher than policymakers intended. More recently, the incentives have become stronger as the financial pressure of PPS has increased. As this trend continues, however, the design features of the system need to be reviewed even more carefully to ensure both adequacy and equity of payments among hospitals and geographic areas. In the next chapter, the Commission presents its recommendations for PPS improvements for fiscal year 1991.

Chapter 2

Recommendations

Chapter 2

Recommendations

The Commission's recommendations for fiscal year 1991 are the result of a continuing process of agenda setting, information collection, analysis, and deliberation. ProPAC selects issues for consideration to conform with its statutory mission and to contribute to an open policy debate on matters of substantial importance to beneficiaries, hospitals, and the Medicare program.

ProPAC's analysis and decision making are guided by a set of interrelated priorities. These priorities were developed in the context of the goals, principles, and design features of PPS described in Chapter 1. They provide the underlying basis for the Commission's recommendations on updating the payment rates and improving PPS. They include:

- Ensuring beneficiary access to high-quality health care;
- Encouraging hospital productivity and long-term cost-effectiveness;
- Facilitating innovation and appropriate technological change;
- Promoting equity in the distribution of payments to hospitals;
- Maintaining stability for providers, consumers, and third-party payers; and
- Making decisions based on reliable, timely data and information.

The Commission has developed a process and guidelines for identifying and analyzing issues related to its responsibilities. Once the Commission establishes its policy agenda, ProPAC staff provides analyses that enable the Commissioners to make informed decisions about appropriate changes to PPS. The resulting recommendations reflect the collective judgment of the 17 Commissioners.

Some recommendations, such as those pertaining to the annual update of payment rates, are repeated in a similar format every year. In other instances, the Commission has reconsidered and amplified or modified past recommendations on the basis of new evidence. In addition, certain issues have been examined for which no recommendations were developed. These issues are briefly discussed later in this chapter.

Concern for reducing the Federal deficit and attaining a balanced budget continue to dominate public policy debate. Although ProPAC has not explicitly taken budgetary concerns into account, these recommendations were developed in recognition of a constrained fiscal environment. Furthermore, the Commission believes that budgetary pressures intensify the need to address distributional and technical payment issues that may bear on the access and quality of care furnished to Medicare beneficiaries.

Recommendations made previously, but not yet implemented by the Secretary, are still in effect. For example, the Commission considers it important for the Secretary to implement the recommendations concerning the definition of labor market areas and evaluation of PRO review of quality of care, even though there are no additional recommendations on these topics this year.

The Commission's 15 recommendations fall into four issue areas:

- Updating PPS payments,
- Adjusting the PPS payment formula,
- Improving patient classification and case-mix measurement, and
- Improving the data used for decision making.

OVERVIEW OF THE COMMISSION'S RECOMMENDATIONS FOR FISCAL YEAR 1991

The first six recommendations pertain to the Commission's judgment of the appropriate change in Medicare payment levels for fiscal year 1991. In making recommendations on the update factor, the Commission is required by the PPS statute to:

. . . take into account changes in the hospital market basket . . . , hospital productivity, technological and scientific advances, the quality of care provided in hospitals (including the quality and skill level of professional nursing required to maintain quality care), and long-term cost-effectiveness in the provision of inpatient services.

The Commission must report its recommendations on the update factor to the Secretary of Health and Human Services no later than March 1 of each year, and

. . . taking into consideration the recommendations of the Commission, the Secretary shall recommend . . . an appropriate change factor . . . which will take into account amounts necessary for the efficient and effective delivery of medically appropriate and necessary care of high quality.

Since fiscal year 1986, Congress has set the update factor through legislation. Both ProPAC and HHS are thus advisers to Congress on aggregate payment increases under PPS. Nevertheless, the Secretary has an opportunity to evaluate ProPAC's recommendations before the HHS proposed update is published in regulations.

The Commission's first recommendation presents the overall amount of the update factor for PPS hospitals. Since the increase in per-case payments to hospitals is affected by considerations beyond the update factor, the Commission also presents its estimate of the overall change in payments that would result from its recommendation. Next is a recommendation on the structure of the hospital market basket. The following two recommendations cover components of the update factor: the discretionary adjustment factor (DAF) and ad-

justments for case-mix change. The fifth recommendation calls for eliminating the differential between the other urban and rural standardized payment amounts through differential updates. The final recommendation in this group addresses the update factor for PPS-excluded hospitals.

In the next section, the Commission recommends two changes in the PPS payment formula. These concern the indirect medical education (IME) adjustment and the collection of data for evaluating the effect of accounting for occupational mix in the wage index.

The Commission makes four recommendations this year related to patient classification and case-mix measurement. The first addresses improving the DRG classification system; the second calls for improving medical record coding and reporting. Next, the Commission recommends improving the use of complications and comorbidities (CCs) for DRG assignment. Finally, ProPAC proposes reassigning patients with Guillain-Barré Syndrome (GBS).

The last three recommendations involve improvements in the data used to support decision making. The first calls for improving the Medicare Cost Report (MCR) data used to calculate total margins. The other two recommend expanding the available information on Medicare beneficiaries and linking hospital and physician volume data.

The full text and discussion of each recommendation follows a presentation of other issues addressed by the Commission. Background information, data analyses, and alternative options considered are in Appendix A and in the ProPAC technical reports listed in Appendix C.

OTHER ISSUES CONSIDERED BY THE COMMISSION

The Commission addressed several issues that have not yet resulted in recommendations, or are being reported separately to Congress. These related to the equity of PPS payment, payment for hemophilia treatment, payment to small rural hospitals, and payment for hospital outpatient services. In addition, a number of DRG classification issues

were examined, with the Commission concluding that changes in DRG assignment were not necessary. Finally, although the Commission commits a significant portion of its resources to analyzing the impact of PPS, these findings do not appear here. They are reported to Congress in June of each year in *Medicare Prospective Payment and the American Health Care System*.

As part of its ongoing evaluation of PPS, ProPAC has continually examined issues concerning equitable distribution of payments to hospitals. For example, recommendations related to the separate payment amounts for urban and rural hospitals and the adjustment for teaching activity are included in this year's report. However, it has become increasingly evident that a broader examination of the factors that explain differences in hospital financial performance under PPS is necessary.

PPS margins data suggest that some hospital groups may be systematically over- or underpaid. It has also been suggested that special circumstances prevent certain hospitals from faring as well financially as the average hospital under PPS. Analyzing payment equity involves balancing competing interests. PPS should not penalize hospitals for factors beyond their management control. But at the same time, much of the observed variation in margins may be attributable to efficiency differences that should not be accounted for in the payment system. In addition, it must be remembered that a payment adjustment to assist one group of hospitals may require lower payments for others.

The relatively poor financial performance of hospitals with high Medicare utilization exemplifies why further analysis of payment equity is warranted. Concern has been raised that these hospitals may be more vulnerable than others because their ability to supplement Medicare payments from other sources is limited. ProPAC analysis indicates that for some hospitals there seems to be an inverse association between Medicare share of patients and PPS margins. However, no feature of PPS has been identified as causing the correlation.

By June 1, the Commission will issue a report on the appropriateness of making a PPS payment adjustment for hospitals treating a high proportion

of Medicare beneficiaries. However, a definitive response to this issue may require a broader examination of why certain hospitals win and other hospitals lose under PPS. This should include the effects of both environmental and management factors. ProPAC intends to pursue this broader investigation in the coming year.

ProPAC conducted a study of hemophilia patients in 1989, culminating with a report to Congress in October. The cost of treating hemophilia patients has been rising due to substantial increases in the price of clotting factor concentrates. ProPAC's analysis found that the payment to cost ratio for Medicare hemophilia patients is significantly lower than the ratio for other Medicare patients.

The Commission recommended that a prospectively determined add-on payment for patients requiring the clotting factor be implemented. This add-on payment should be for a two-year period until the cost implication of new recombinant-DNA products for hemophilia treatment can be determined. Congress implemented this recommendation in the Omnibus Budget Reconciliation Act of 1989 (OBRA 1989) and has asked ProPAC to continue examining the subject.

As required by OBRA 1989, ProPAC has begun a study of Medicare payment options for rural sole community hospitals and other small rural hospitals. The feasibility and desirability of a cost-based reimbursement system for these hospitals, as well as a payment adjustment for decreases in inpatient volume, will be investigated. ProPAC will also examine alternative definitions of market share for use in determining eligibility for sole community hospital payment. A report on these issues will be submitted by May 1, 1990.

ProPAC is also conducting a congressionally mandated study of hospital outpatient payment under Medicare. The study will examine the causes of increases in Medicare outpatient payments, as well as the cost differences between hospitals and freestanding facilities. In addition, the effects of PPS payment, Medicare cost allocation rules, and PRO review on outpatient costs will be analyzed. A report addressing these issues will be submitted by July 1, 1990. A follow-up report on alternative methods for payment of outpatient services will be completed by March of 1991.

RECOMMENDATIONS FOR FISCAL YEAR 1991

Updating PPS Payments

Recommendation 1: Amount of the Update Factor for PPS Hospitals

For fiscal year 1991, the PPS standardized payment amounts should be updated to account for the following factors:

- The projected increase in the modified PPS market basket recommended by ProPAC, currently estimated at 5.4 percent;
- A correction for substantial errors in the fiscal year 1989 market basket forecast, currently estimated at zero;
- A discretionary adjustment factor of zero; and
- A net -0.5 percent adjustment for case-mix change.

In addition, a positive adjustment of 2.1 percent for rural hospitals and a negative adjustment of 0.4 percent for large urban and other urban hospitals should be made to reflect the first year of a three-year phase-out of the differential in the standardized amounts between rural and other urban hospitals.

This recommendation reflects the Commission's judgment about the appropriate increase in the level of PPS prices for fiscal year 1991. It assumes that the Commission's other concerns regarding the payment formula and the DRG weighting factors are also addressed in establishing the fiscal year 1991 payment rules.

The Commission's recommendation would result in an estimated 4.9 percent average update factor for fiscal year 1991. This represents an increase of 7.0 percent for rural hospitals and 4.5 percent for urban hospitals. The separate adjustments for rural and urban hospitals are intended to constitute the first step in eliminating the differential between the standardized amounts for rural and other urban hospitals over a three-year period.

In the Commission's judgment, the recommended update factor reflects an increase appropriate to encourage the efficient provision of hospital care while maintaining access to quality care by Medicare beneficiaries. The numerical amount of ProPAC's update factor recommendation is likely to be modified as more current market basket forecasts become available. The components of the Commission's update factor recommendation are summarized in Table 1.

The Commission believes that the standardized amount for rural hospitals should be increased to equal that of other urban hospitals over three years, or by fiscal year 1993. In OBRA 1989, Congress required the elimination of the differential by 1995. In ProPAC's view, the increase in the overall standardized amount should not raise the overall average update. Therefore, the Commission recommends an offsetting negative adjustment to the standardized amounts for large urban and other urban hospitals. In this way, the average update factor will be neither more nor less than it would have been if the current differential were maintained. In Recommendation 5, the Commission addresses elimination of the urban-rural differential in more detail.

Currently, large urban hospitals receive a higher standardized amount than other urban hospitals. Recent ProPAC analysis indicates that the difference between payment per case for large urban and other urban hospitals is comparable to the difference in cost per case. Therefore, the Commission recommends that large urban and other urban hospitals receive the same update this year.

The 5.4 percent forecasted market basket increase for fiscal year 1991 reflects the Commission's proposed modification to the market basket, which is presented in Recommendation 2. The forecast is based on the most recent data available. It does not, however, reflect rebasing of the market basket, planned by the Health Care Financing Administration (HCFA).

The Commission has also modified its forecast error correction methodology, which results in a correction factor of zero. ProPAC believes that only substantial errors in market basket forecasts used to update payment rates (those exceeding 0.25 percentage points) should be corrected. Furthermore,

Table 1. Estimated PPS Update Factors for Fiscal Year 1991 Under ProPAC Recommendations**Components of the Update Factor**

Components applied to all hospitals:

Fiscal year 1991 market basket forecast ^a	5.4%
Correction for fiscal year 1989 forecast error	0.0

Components of discretionary adjustment factor

Scientific and technological advancement ^b	--
Productivity ^b	--
Total discretionary adjustment factor	0.0

Adjustments for case-mix change

Total DRG case-mix index change	2.7
Real DRG case-mix index change	- 1.5
Within-DRG case complexity change	- 0.7
Net adjustment for case-mix change	- 0.5

Average update before additional adjustments	4.9
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Additional adjustments to the standardized amounts:

Adjustment for large urban areas	- 0.4
Adjustment for other urban areas	- 0.4
Adjustment for rural areas	2.1

Total Update Factor

Average update factor	4.9
Large urban	4.5
Other urban	4.5
Rural	7.0

^a Forecast of ProPAC-recommended PPS market basket by Health Care Financing Administration, Office of the Actuary, February 1990.^b In the Commission's judgment, the added costs for scientific and technological advancement can be funded by increases in hospital productivity. Therefore, these components of the update factor sum to zero.

the forecast error correction should be based on actual data, not a forecast. This approach requires ProPAC to examine errors in the 1989 market basket forecast, which was used to update payment rates, rather than forecasts of errors in the 1990 market basket. Finally, the Commission believes that all errors in the forecast should be considered. Previously, ProPAC corrected only for errors in the forecasts of external price proxies. Errors in hospital industry proxies were not counted.

The update recommendation includes a discretionary adjustment factor of zero. The Commission believes that cost increases due to new technology should be financed by productivity gains. The discussion accompanying Recommendation 3 provides more detail on the Commission's DAF recommendation.

The increase in average per-case payments will be greater than the Commission's recommended

4.9 percent update (see Table 2). This is primarily because hospital payments automatically increase with increases in the case-mix index. Future changes in the case-mix index are difficult to project, however. Assuming that the overall fiscal year 1991 case-mix index change is 2.5 percent, which is consistent with currently available data on the trend in case-mix change, the average increase in per-case payments under the Commission's recommendation would be 7.4 percent. However, ProPAC expects that a portion of the additional payment due to case-mix change would be offset by the added costs of treating sicker patients. Recommendation 4 provides further discussion of case-mix change.

In addition to the effect of the update factor, the PPS standardized amounts would increase as a result of the Commission's proposed change in the indirect medical education adjustment. In Recommendation 7, the Commission proposes reducing

Table 2. Estimated Fiscal Year 1991 Average Increase in Per-Case PPS Payments Under ProPAC Recommendations

PPS update factor	4.9%
Estimated case-mix index change	2.5
Total increase in average PPS payments*	7.4

* Most of the increase in payments resulting from case-mix index change will be offset by the increased costs of treating sicker patients.

this adjustment from 7.7 percent to 6.8 percent in a budget neutral fashion. The reduced payments to teaching hospitals from the indirect medical education adjustment would be returned to the standardized amounts for all hospitals. If Recommendation 7 is implemented, the estimated increase in the standardized amounts would be 0.6 percent for urban hospitals and less than 0.1 percent for rural hospitals (see Table 3).

The rationale for the components of ProPAC's proposed update factor is presented in Recommendations 2 through 5 and accompanying discussions. Under current law, all hospitals would receive a fiscal year 1991 PPS update equal to the increase in the market basket. Adoption of the Commission's update recommendation would therefore require legislative action.

Recommendation 2: Market Basket Structure

The Commission believes the weight accorded to the hospital industry wage portion of the market basket should be increased to better reflect changes in hospital and other labor markets. The wage and benefit component of the market basket should be

measured using a blend of 50 percent of the Employment Cost Index compensation series for hospital workers and 50 percent of nine non-hospital ECI compensation series reflecting the types of employees hospitals hire. The Commission also believes that contract labor expenses should be incorporated into the new compensation component in the market basket.

This recommendation reaffirms one that ProPAC made in its March 1989 report. The Commission understands that the Secretary is currently considering options for rebasing the hospital market basket. ProPAC strongly believes this recommendation would improve the validity and reliability of the market basket.

This recommendation would change the current construction of the hospital occupational index used in the market basket to measure changes in wages. More weight would be given to wage trends unique to the hospital industry. Currently, the effect of inflation on wages is measured by a combination of hospital industry and economywide wage measures. Hospital wages are about 30 percent of the wage component.

The Commission believes that the current market basket does not adequately recognize the unique characteristics of the hospital labor market. ProPAC does not believe, however, that inflationary pressure on wages should be represented in the market basket solely by measures of hospital response to these pressures. Rather, giving equal weight to hospital and non-hospital wage measures would appropriately reflect changes in the labor markets where hospitals must establish their wage and benefit levels.

Table 3. Total Change in PPS Standardized Amounts Due to Reduction in the Indirect Medical Education Adjustment

Update Category	Total Update Factor	Change in Standardized Amounts ^a	Total Change in Standardized Amounts
Average update factor	4.9%	0.6%	5.5%
Large urban	4.5	0.6	5.1
Other urban	4.5	0.6	5.1
Rural	7.0	b	7.0

^a The Commission recommends a reduction in the indirect medical education adjustment from 7.7 percent to 6.8 percent, with the difference returned to the standardized amounts for all hospitals.

^b Less than 0.1 percent.

In the Commission's opinion, it is inconsistent to treat employee benefits different from wages in the market basket since they are both part of an employee's total compensation. Some hospitals, for example, are allowing employees to trade benefits for salary, and vice versa. Furthermore, the current benefit price proxy used in the market basket is completely external to the hospital industry and may not measure changes in hospital employee benefits very well.

The Commission further believes that contract labor expenses should be included in the compensation component of the market basket, with a single combined weight for hospital employees and contract labor. This will make the market basket neutral to hospitals' decisions whether to hire employees or use contract personnel.

The Commission's recommendation would change the hospital market basket in several ways. First, the weight of the internal (hospital-specific) wage share in the hospital occupational index would be increased from 30 percent to 50 percent. The hospital occupational index is used to measure changes in wages in the market basket.

Second, a different set of price proxies would be used in the occupational index. The Employment Cost Index (ECI) is a price index developed by the Department of Labor to measure changes in the price of labor inputs for specific industries and occupational categories. There are two different sets of ECIs, one for employee wages and another for employee compensation, covering all wages and benefits. The Average Hourly Earnings (AHE) is a Department of Labor wage series that reflects changes in the average hourly wage rate for nonsupervisory workers in selected industries. The ECI, unlike the AHE, holds changes in employee skill mix constant. Both the ECI and AHE have series that cover hospital workers, although the ECI for hospitals was only recently developed.

The internal wage share in the index would use the ECI compensation series for hospital workers. The external wage shares would use the same set of occupational categories currently used in the index, but the price proxies would be the respective ECI compensation series for each employment category. Currently, the hospital occupational index uses a 50/50 blend of internal and external

wage proxies only for the professional and technical worker category. The blend for this category is 50 percent AHE for nonsupervisory hospital workers and 50 percent ECI wage series for professional and technical workers. All other employee categories are measured using only external wage proxies.

Third, these changes would be applied to a new compensation component in the market basket. This component combines wages and salaries, benefits, and contract labor expenses into one weight in the market basket. The new hospital occupational index would be used to measure changes in employee compensation in the market basket.

Since employee compensation and contract labor expenses are about 68 percent of the overall market basket, internal price proxies would make up about 34 percent of the overall market basket weights. The overall internal proxy share in the current market basket is about 16 percent.

Besides increasing the proportion of hospital industry price proxies in the market basket, this new market basket construction is preferable to the current one for several other reasons. The wage and benefit coverage of the ECI compensation series is more complete than the wage and benefit price proxies currently used. The ECI effectively covers all employee compensation expenses: wages, benefits, and bonuses. Moreover, the ECI for hospitals covers all hospital personnel in all hospitals, whereas the AHE covers only nonsupervisory personnel in private hospitals.

Furthermore, the ECI, unlike the AHE, holds changes in employee skill mix constant. This is consistent with construction of the rest of the market basket, which has fixed weights for each non-wage component. Finally, the recommended construction would result in a more technically correct market basket. For more information on the recommendation, see Appendix A.

Recommendation 3: Discretionary Adjustment Factor

For fiscal year 1991, the net allowance for scientific and technological advancement and productivity improvement in the discretionary adjustment factor should be zero.

The discretionary adjustment factor incorporates considerations related to scientific and technological advancement and hospital productivity improvement, as provided in the statute establishing PPS. For fiscal year 1991, ProPAC did not attempt to quantify these components. The data led the Commission to conclude that reasonable ranges of the positive scientific and technological advancement allowance and the negative productivity improvement adjustment are roughly offsetting. The Commission believes it is important that the DAF continue to provide an incentive for hospitals to strive for productivity improvement.

The individual adjustments for scientific and technological advancement and hospital productivity improvement are discussed below.

Scientific and Technological Advancement—The scientific and technological advancement allowance is a future-oriented policy target. It provides additional funds for hospitals to improve services by adopting quality-enhancing, but cost-increasing health care advances.

The policy target must ultimately be based on judgment since it is impossible to enumerate all the technologies that meet this definition and to define their costs precisely. In order to develop a more informed judgment, however, the Commission examines a set of the most important new technologies and scientific developments. Estimates of the systemwide cost of adopting these technologies help ProPAC determine an appropriate increment to the hospital payment base.

This examination suggests that the standardized amounts would need to be increased by 0.7 percent, including the effects of new technologies either complementing or substituting for existing technologies. In the Commission's judgment, the amount should also be slightly higher than 0.7 percent to account for new technologies and changes in practice patterns not considered in its study.

As stated in previous reports, ProPAC believes that advances resulting in greater hospital efficiency do not require a special allowance because they should lower hospital costs. The effects of cost-decreasing technologies are considered implicitly in the productivity target.

The Commission's recommendation presumes that Medicare capital payments will be sufficient to accommodate capital expenses associated with the implementation of cost-effective new technologies and treatments. In addition, the allowance for real case-mix change finances part of the expense associated with practice pattern changes that raise costs.

Hospital Productivity—The productivity allowance in the DAF is also a future-oriented target. Substantial gains in productivity were achieved by hospitals after the initiation of PPS. Since then, there have been two annual decreases in real case-mix adjusted productivity, followed by a small productivity gain in 1988. ProPAC believes it is appropriate to expect hospitals to achieve modest productivity improvement during fiscal year 1991. The Commission also determined that the Medicare program should not subsidize declines in productivity.

ProPAC believes that it is feasible for the costs of scientific and technological advancement to be financed by productivity gains. The recommended adjustment assumes productivity gains that are at least twice the range of likely cost increases for new technology. This reflects the Commission's policy that productivity gains should be shared equally by the Medicare program and the hospital industry. For more information on this recommendation, see Appendix A.

Recommendation 4: Adjustments for Case-Mix Change

For fiscal year 1991, the PPS standardized amounts should be reduced by 0.5 percent to account for increased payments from case-mix index change. This adjustment reflects:

- A 2.7 percent reduction for the estimated case-mix index change during fiscal year 1990,
- A positive allowance of 1.5 percent for real across-DRG case-mix index change during fiscal year 1990, and
- A positive allowance of 0.7 percent for within-DRG case-complexity change during fiscal year 1990.

ProPAC recommends an annual adjustment to PPS payments to account for increased hospital payment due to case-mix index change. The Commission believes that hospitals should be compensated for increased patient care resource requirements, termed real case-mix change, but not for medical record documentation or coding practice changes that affect DRG assignment, termed upcoding. Real case-mix change has contributed to the dramatic increase in the CMI since the implementation of PPS. Upcoding has also contributed to this increase. Because hospital payments automatically increase with the reported CMI, hospitals have been overpaid to the extent that CMI change is caused by upcoding. This overpayment is at least partially offset by within-DRG case-complexity change, which is real case-mix change that is not measured by the CMI.

To allow payments to increase for both components of real case-mix change, while removing the effect of upcoding, the Commission's recommendation has three parts. The first part is a negative adjustment for the CMI increase from the previous year. This is removed from the payment base because it includes the effects of upcoding. Two positive allowances are then made for real case-mix change. Total real case-mix change is the sum of across-DRG case-mix index change and within-DRG case-complexity change. This methodology allows hospital payments to increase for changes in the resources used to treat patients, but not for changes in medical record documentation and coding practices.

The CMI in 1989 increased an estimated 2.9 percent, following a significantly larger change in 1988. Based on this estimate and previous trends in CMI growth, ProPAC projects that CMI change in 1990 will be 2.7 percent.

The estimate for real across-DRG case-mix index change is based on information from a recent study of real case-mix change, sponsored by HCFA and ProPAC. The contractor reabstracted a sample of medical records from 1987 and 1988, applying consistent coding techniques. By comparing the reabstracted data with data coded by the hospitals on the same cases, the contractor determined that approximately one-third of the 3.6 percent increase in the CMI for these cases was real. In a previous study using the same methodology, the contractor determined that one-half to three-quarters of the

2.1 percent increase observed in a sample of cases from 1987 was real. These data led the Commission to conclude that as case-mix change declines, the proportion that is real increases. The Commission believes that slightly more than half, or 1.5 percentage points, of the CMI change in 1990 is due to real changes in patients or their treatments.

The estimate for within-DRG case-complexity change is based on another recent study. The contractor developed range estimates of within-DRG case-complexity change for 1986 through 1988 by applying two alternative patient classification systems to Medicare discharge data, while holding the DRG constant. The contractor estimated that case complexity increased by approximately 1.6 percent to 1.9 percent over this period. Change from 1987 to 1988 was about 0.8 percent. The Commission determined that case-complexity change in 1990 would be 0.7 percent. This estimate was based on applying the study findings to more recent data and acknowledging that the estimates may be overstated because of upcoding.

ProPAC estimated that during the first six years of PPS, CMI change generated payment rate increases that were nearly twice those resulting from the annual updates and all other policy changes affecting PPS payments. Given the importance of case-mix change and the failure of CMI change to diminish as much as expected over time, the Commission will continue studying this phenomenon. ProPAC found the information from the medical record reabstraction study to be valuable in making its recommendation and in understanding case-mix change. The Commission was pleased to collaborate with HCFA on this study and urges the agency to continue this joint effort to examine case-mix change. ProPAC also encourages HCFA to consider changing the PRO medical record sampling scheme so that the resulting SuperPRO database is more representative of total hospital cases. This would enhance the ability to analyze case-mix change as well as provide a useful data source for examining other issues related to PPS.

Recommendation 5: Eliminating the Differential between the Other Urban and Rural Standardized Amounts

The differential between the standardized payment amounts for hospitals located in Metropolitan Statistical Areas with fewer

than 1 million people (other urban hospitals) and for hospitals located outside MSAs (rural hospitals) should be eliminated. Through differential updates, the rural standardized amount should be increased until it equals the other urban standardized amount. This should be accomplished by fiscal year 1993 in a budget neutral fashion. For fiscal year 1991, hospitals located in rural areas should receive an update of 7.0 percent, which is 2.5 percentage points higher than hospitals located in urban areas.

The standardized amounts are the base payment amounts under PPS. Separate urban and rural standardized amounts were established to reflect the historically lower Medicare costs of rural hospitals. The standardized amounts are computed based on hospitals' Medicare cost per case, adjusted for the effects of area wage differences, DRG case mix, teaching activity, and care for a disproportionate share of low-income patients. Each year, the standardized amounts have been adjusted through an annual update factor. In the first year of PPS, the rural standardized amount was 20.2 percent lower than the urban standardized amount. The differential between average urban and rural standardized amounts narrowed to 7.8 percent in the seventh year of PPS (fiscal year 1990).

In 1981, when hospitals were paid on the basis of their costs, Medicare cost per case in rural hospitals was approximately 40 percent lower, on average, than the cost in urban hospitals. This difference has continued through at least the fifth year of PPS, fiscal year 1988, the most recent year for which Medicare cost data are available. Most of the difference in cost can be explained by factors that are recognized in the PPS payment formula, such as case mix and area wages. A smaller portion is associated with factors such as practice patterns, severity of illness, and service mix that are not part of the payment formula.

In a new analysis of the differences between urban and rural hospitals' per-case costs and payments, the Commission found that, in general, urban hospitals have been systematically paid more relative to costs than rural hospitals. Rural hospitals' per-case costs have remained about 40 percent lower than those of urban hospitals, yet payments

to rural hospitals have been about 45 percent lower. This is primarily because urban hospitals have had a much larger increase in payments from case-mix index change than rural hospitals. ProPAC analysis indicates that most of this difference in actual per-case payments occurs between hospitals located in MSAs with fewer than 1 million people and hospitals located outside MSAs.

The Commission believes that the payment system should explicitly incorporate factors, which are beyond the control of hospitals, that affect costs. Currently, the differential between the urban and rural standardized amounts implicitly includes some of these cost differences. Until these factors can be explicitly identified, however, the Commission believes that the differential between urban and rural standardized amounts should be eliminated. As cost differences are better measured and explained, other adjustments may become appropriate.

ProPAC recognizes that eliminating the differential will mean that differences between urban and rural hospitals costs, which are implicitly included in the payment system, will no longer be recognized. Consequently, some hospitals may receive higher payments relative to their costs than others. For this reason, the Commission will continue to examine whether it may be appropriate to include other payment adjustments to further refine PPS.

In the coming year, ProPAC will continue to review the relationship between per-case costs and payments for large urban, other urban, and rural hospitals. The Commission will reconsider the appropriateness of the different standardized amounts for large urban hospitals and all other hospitals.

For some time, the Commission has been concerned about the problems affecting rural hospitals and the rural health care system, and their implications for access to needed health care. The relatively poor financial performance of many rural hospitals under PPS remains a concern. Thus, ProPAC will also reevaluate the appropriateness of PPS payment methods for small rural hospitals. The Commission is particularly concerned that these hospitals are more vulnerable to wide fluctuations in volume and case mix than larger hospitals.

The distribution and equity of PPS payments among hospitals becomes increasingly critical to PPS policy as constraints on Medicare spending continue. The equity of PPS payments should be considered more broadly as well. Of the many pressures that rural and urban hospitals face, only some are attributable to PPS. Many other factors contribute to the overall financial condition of hospitals. The Medicare program should not be expected to solve all financial problems facing the hospital industry. Medicare cannot, however, ignore other issues potentially affecting continued access to hospital care for all Americans. For more information on this recommendation, see Appendix A.

Recommendation 6: Update Factor for PPS-Excluded Hospitals and Distinct-Part Units

For fiscal year 1991, the target rate of increase for excluded hospitals and distinct-part units should be determined separately from the PPS update factor. The target rate of increase should equal the projected increase in the appropriate market basket. Based on the Commission's most current information, the recommended rate of increase is 5.6 percent for fiscal year 1991.

The Commission's update recommendation for PPS-excluded hospitals and distinct-part units is determined primarily by projected increases in the market basket. In addition, the modified market basket structure discussed in Recommendation 2 also applies to the PPS-excluded market basket. ProPAC continues to believe that the increase should include a correction for substantial errors in the market basket forecast (those that equal or exceed 0.25 percentage points). Furthermore, ProPAC believes that the forecast error correction should be based on actual data, not a forecast of the error. This approach requires that the Commission examine errors in the 1989 market basket used to update target limits. The fiscal year 1989 market basket forecast was 5.5 percent, and the actual market basket was 5.4 percent. Since this change is less than 0.25 percentage points, the forecast error correction for fiscal year 1989 is zero.

ProPAC has also developed a discretionary adjustment factor for PPS-excluded facilities. The DAF includes an allowance for scientific and technological advancement and an adjustment for productivity improvement. Both of these components

are future-oriented targets. The scientific and technological advancement factor reflects ProPAC's judgment on the financial requirements hospitals need to implement quality-enhancing, but cost-increasing technology. The productivity factor reflects achievable productivity gains resulting from the cost containment incentives inherent in the target rate of increase limits. After examining these factors, the Commission concluded that the cost increases due to scientific and technological advancement should be offset by productivity improvement. Therefore, the DAF is set at zero for fiscal year 1991. See Appendix A for more information.

The Commission believes that a review of the impact and effectiveness of the target rate of increase limits is necessary. ProPAC supports the work undertaken by the Secretary in this regard. In addition, the Commission will continue examining changes in costs and payments for PPS-excluded facilities, as well as changes in patient complexity, and looks forward to working with the Secretary in the evaluation.

Adjusting the PPS Payment Formula

Recommendation 7: Indirect Medical Education Adjustment

The Commission recommends that the Secretary seek legislation to reduce the indirect medical education adjustment from its current level of 7.7 percent to 6.8 percent for fiscal year 1991. This reduction should be implemented in a budget neutral fashion, with the savings returned to all hospitals through corresponding increases in the standardized amounts.

Under PPS, payments to teaching hospitals are adjusted based on the level of teaching activity. The indirect medical education adjustment recognizes the higher costs associated with teaching effort. Among the factors contributing to these higher costs are greater use of ancillary services, a more severely ill patient mix, location in inner cities, and a more costly mix of staffing and facilities.

Using the most recently available cost data, ProPAC analysis showed that, for every 0.1 increase in the ratio of interns and residents to beds,

Medicare cost per case for teaching hospitals is 3.2 percent higher than the cost for non-teaching hospitals. The analysis controlled for cost differences attributable to case mix, area wages, outliers, disproportionate share caseload, and geographic location.

The Commission recognizes that since PPS began, the Medicare program has more than adequately compensated teaching hospitals for the indirect effects of graduate medical education on Medicare cost per case. The current IME adjustment of 7.7 percent is more than twice the empirical estimate of 3.2 percent derived through the Commission's analysis. Improvements in case-mix measurement over time are responsible for some of the difference between the 7.7 percent and 3.2 percent figures. However, the Commission believes that residual unmeasured severity differences remain between hospitals that are not captured by the current DRG case-mix measure.

PPS operating margins—the excess of PPS payments over costs—through the fourth year of PPS are significantly higher for teaching hospitals than for non-teaching hospitals. By contrast, overall hospital margins—the ratio of total costs to total revenue—for major teaching hospitals are significantly lower than for other teaching and non-teaching hospitals. In terms of PPS payments, the Commission believes that Medicare should interpret its responsibility to program beneficiaries more broadly than focusing on the payment of operating costs. Reducing the IME adjustment by more than one-half in one year—which would be the case if the 3.2 percent were applied to fiscal year 1991—might seriously jeopardize the financial position of major teaching hospitals. Furthermore, it may impair their ability to fulfill their unique mission and maintain the quality of care they provide to Medicare beneficiaries.

The Commission believes that gradually reducing the level of the IME adjustment is a prudent course of action. ProPAC's recommendation reflects one-fifth of the difference between the current IME adjustment and the Commission's empirical estimate. Further reductions in the adjustment to complete a five-year phase-out of this difference should be made only after carefully evaluating the impact on the financial condition of teaching hospitals, and reevaluating the level of the empirical

estimate. The Commission is aware that while Medicare has been paying more than its share of the costs of operating these hospitals, other factors responsible for the decreasing overall margins of major teaching hospitals—such as the number of uninsured, or underinsured—should be addressed by changes in public policy.

The Commission therefore recommends reducing the level of the IME adjustment from its current 7.7 percent to 6.8 percent for fiscal year 1991. The reduction in payments through the lowered IME adjustment should be accompanied by a redistribution of these dollars through corresponding increases in the standardized amounts for all hospitals. ProPAC will annually examine the level of the IME adjustment, other factors that influence payments to teaching hospitals, and the impact of lowered payments on the financial condition of teaching hospitals before recommending any subsequent reductions. In addition, the Commission strongly urges the Secretary to study the impact of PPS and non-PPS factors (for example, uncompensated care) on the financial status of teaching and non-teaching hospitals, and to develop a broad approach to address these issues, including alternative funding mechanisms. (See Appendix A.)

Recommendation 8: Improving the Area Wage Index

The Secretary should begin immediately to collect data on employee compensation and paid hours of employment for hospital workers in each occupational category. After collecting these data, the Secretary should carefully evaluate the effect of adjusting the area wage index for differences in the occupational mix of employment.

The Commission is concerned that the current area hospital wage index tends to overcompensate hospitals in some urban areas, while it generally undercompensates hospitals located in rural areas. This concern arises because of the data and the method used in calculating of the area wage index.

The area wage index is one of the most important factors affecting the level of payments to individual hospitals under PPS. The index is used to adjust a hospital's per-case payment rates to reflect the level of hourly wage rates it must pay in

the local labor market to hire nurses, technicians, and the other personnel it needs to care for patients. The wage index is intended to measure differences among hospital labor market areas in the price per unit of labor.

The current wage index is based on aggregate wages, salaries, and paid hours of employment for all hospital workers in each labor market area. As a result, the index may reflect variations in both the price level and the occupational mix of employment. Aggregate average hourly wage rates vary across areas in response to differences in the cost of living and in local labor market conditions. This is the kind of variation the index is intended to capture. Aggregate average hourly wage rates may also differ, however, because hospitals in one area tend to employ a more expensive occupational mix of employees than hospitals in another area. It is apparent that hospitals in some large urban areas tend to employ a substantially more costly mixture of workers than hospitals located in rural areas.

The wage index is not intended to measure differences among areas in the average quantity or mix of labor hospitals employ. To the extent that occupational mix is related to case mix, teaching activity, or serving large numbers of low-income patients, the differences in the cost of labor associated with occupational mix are compensated through other adjustments to the payment rates.

Findings from a ProPAC study of variations in occupational mix suggest that occupational mix in a hospital is partially related to the hospital case mix, teaching status, and other hospital characteristics. Further, the study found that occupational mix does have an impact on the area wage index. The overall magnitude of the effect was found to increase wage index values by 1.8 percent in rural areas. However, in Montana, some areas in Texas, and in the South, the increase was three to six times as much.

The Commission recommends that current data on wages and paid hours of employment necessary to make such an adjustment should be collected. Further, ProPAC believes that such data collection should be designed, as far as practicable, to minimize the burden of data collection on hospitals.

Once current data are available, the Secretary should assess the effect of an occupational mix

adjustment on geographic areas and hospital groups. The Commission believes that an occupational adjustment which would recognize regional variation in employment preferences and employee supply in the wage index should be considered in an evaluation. The Commission would be pleased to assist the Secretary in evaluating an occupational mix adjustment to the wage index.

Improving Patient Classification and Case-Mix Measurement

Recommendation 9: Improving the DRG System for Measuring Case Mix

The Commission strongly urges the Secretary to continue developing and evaluating improvements in the measurement of hospital case mix and patient resource use.

The ability to identify and discriminate among groups of patients that require different amounts and mixtures of hospital inpatient services is crucial in making accurate and equitable payments to hospitals under PPS. This function, called case-mix measurement, involves three components.

First, a standard disease and procedure coding system is used to summarize the clinical problems experienced by each Medicare patient (diagnoses and symptoms), and the treatment provided (medical and surgical procedures). The coding system currently in use is the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM). The second component is a patient classification system that assigns Medicare patients to distinct patient categories based on coded clinical and demographic information on the patient's hospital bill. Currently, patient categories are defined and patients are assigned using the diagnosis-related groups patient classification system adopted by the Congress when PPS was enacted in 1983. The third component is a set of relative weighting factors that indicate the relative costliness of inpatient treatment for an average Medicare patient in each DRG category. The relative weights are based on covered hospital inpatient charges reported on the Medicare patient bills.

Although the Congress selected the DRGs as the best classification system available at the time, it also recognized important limitations of this system.

Thus, current law requires that ProPAC recommend changes and the Secretary make adjustments to the DRGs and the relative weighting factors annually. These adjustments are designed to reflect changes in treatment patterns, technology, and other factors that may affect the relative use of resources. Current law also requires the Secretary to improve the classification system's ability to capture variations in severity of illness among patients and hospitals.

The Commission believes that the Secretary generally has acted responsibly in attempting to meet these requirements. The Commission has continued to be concerned, however, about specific DRGs, including those affected by new technologies. The Commission also believes that further improvements in case-mix measurement are necessary to better reflect differences in patient severity of illness.

In recent years, HCFA has funded a number of research projects to develop or evaluate major revisions to the DRGs and alternative classification systems. These projects have produced several potential alternatives to the current DRG system. Some are completely separate systems that could be used as substitutes for the current system. Others, such as the broad refinements completed in 1989 at Yale University and recent refinements in New York State, would substantially modify the current DRGs.

As the Commission indicated in its March 1989 report, adoption of a major revision to the current DRG system could have important effects on PPS. Therefore, ProPAC continues to believe the Secretary should carry out a thorough and careful evaluation of the alternatives.

In conducting this evaluation, the Secretary should focus on a number of criteria. Since accuracy of payment is a primary goal of PPS, resource homogeneity (similarity of resource use among the patients in each patient category) is obviously an important criterion. So is the impact an alternative classification system may have on the distribution of payments and on payment equity among hospitals.

The Secretary also should be concerned about the stability of resource use patterns for each patient category from year to year. The stability of

the relative weighting factors and payment rates associated with a patient category is an important element of the financial incentives perceived by hospital decisionmakers. Volatility of payment rates due to frequent changes in the relative weights discourages development of long-term hospital policies consistent with PPS goals.

In this regard, a patient classification system that creates many small categories with unstable patient populations would be relatively undesirable. Similarly, a classification system that is sensitive to changes in coding practices may contribute to volatility in payment incentives over time. It also may create undesirable incentives for hospital managers and clinicians, and result in unwarranted increases in Medicare payments for inpatient care.

In addition, the Secretary should address the administrative feasibility and cost of implementing a potential revision, including the costs hospitals may incur to adapt their billing, utilization review, and reporting systems. Finally, it may be important to consider the utility of a classification system for utilization review and hospital resource management. A classification alternative that is more clinically coherent and more compatible with the internal organization of most hospitals would be more desirable because payment incentives would be targeted more accurately to the relevant decisionmakers.

ProPAC has worked with HCFA staff on these issues and would be pleased to continue to do so.

Recommendation 10: Improving Medical Record Coding, Reporting, and DRG Assignment

The Secretary should continue to improve the ICD-9-CM coding system to allow for more accurate clinical reporting. The Commission continues to support a more timely, systematic, and consultative approach to consideration of new ICD-9-CM codes. The Commission urges the Secretary to ensure that improvements previously made in the ICD-9-CM system are carried forward into ICD-10. The Secretary should revise the Uniform Billing Form to allow reporting of 10 diagnosis codes and 10 procedure codes.

The International Classification of Diseases, Ninth Revision, Clinical Modification is the coding

system currently used to assign cases to individual DRGs. The ICD-9-CM Coordination and Maintenance Committee includes representatives from the National Center for Health Statistics, the American Hospital Association (AHA), and HCFA. This committee has made a number of changes that have resulted in more timely implementation of new codes and improvements in existing codes. ProPAC supports the Secretary's ongoing efforts to improve coding. The Commission believes, however, that the Coordination and Maintenance Committee could achieve further improvements by using a more systematic approach to identify conditions and treatments for review.

The committee now considers, on an ad hoc basis, coding changes that are requested by members and other interested parties. It meets three times each year; issues must be presented to the committee no later than November for implementation in the following fiscal year. This timetable entails a one- to two-year delay after problems have been brought to the committee's attention.

ProPAC believes that the need for new or modified codes could be identified earlier if the committee followed a more systematic approach in setting its agenda. For example, the committee should review all devices newly approved by the Food and Drug Administration. It should also routinely consult professional societies to identify important new technologies that merit codes. Further, the committee should actively try to identify areas in which the diagnosis and procedure codes are not specific enough to describe a clinical entity, such as those for limb salvage surgery.

By 1995, the tenth revision to the ICD, or ICD-10, is expected to be ready for implementation for tracking disease incidence and prevalence. ICD-10 will contain numerous improvements to the ICD-9. However, it will be necessary to have a clinical modification of ICD-10 to use it for DRG assignment. This modification could also incorporate the improvements to ICD-9-CM that have been created and implemented through the work of the Coordination and Maintenance Committee. The Commission urges the Secretary to carry the improvements made in ICD-9-CM forward into ICD-10.

Coded data from the Uniform Billing Form (UB-82) are the basis for DRG assignment. These

data are also important for policy analysis using the hospital inpatient claims (MedPAR) database. Currently, there are only spaces for five diagnosis codes and three procedure codes on each UB-82 billing sheet. Two or more codes are often necessary to describe accurately one procedure or one diagnosis. (An example of this is coronary artery bypass graft with cardiac catheterization). This limitation results in coding only diagnoses and procedures that directly affect DRG assignment. Other important clinical diagnoses and procedures are not being reported. Additional spaces on the UB-82 are necessary for more complete clinical reporting. These data could be used in policy studies to improve DRG definitions in the future.

Recommendation 11: Improving the Use of Complications and Comorbidities for DRG Assignment

The Secretary should continue the ongoing effort to refine the DRGs to improve clinical specificity. The current structure of the DRGs and proposed refinements use the presence of complications and comorbidities to classify patients with respect to resource use. The Secretary should undertake a systematic evaluation of the codes in the CC list, with special attention to improving codes that would assign seriously ill patients to categories that would better reflect their resource requirements.

In its April 1987 report, the Commission recommended that the Secretary revise the current list of comorbidities and complications and its use in defining DRGs. This would ensure more appropriate grouping of Medicare cases for payment under PPS. Comorbidities and complications are secondary diagnoses that allow more specific categorization of cases for DRG assignment. The recommendation further stated that the Secretary should evaluate several possible approaches on the basis of resource intensity, including the development of Major Diagnostic Category (MDC)- or DRG-specific lists of CCs. A pilot study conducted by ProPAC had determined that a clinical modification of the CC list could distinguish levels of complexity among diagnoses and help explain variation in resource use among DRGs.

The Secretary has been sensitive to problems with DRGs and continues to consider refinements to the system. The Commission encourages and supports the Secretary's efforts. Nevertheless, any refinement to the system depends upon the specificity of the existing diagnosis and procedure codes. Some proposed refinements to the DRGs would classify patients into minor, major, and catastrophic categories on the basis of CCs. Many of the codes on the CC list are poorly defined and not clinically specific. Decubitus ulcer, which is assigned to the catastrophic category used in the Yale DRG refinement, is illustrative. The coding system cannot distinguish decubitus ulcers of varying clinical severity, although these ulcers of different clinical severity exert different effects on costs. ProPAC believes that the Secretary should undertake an evaluation of the entire CC list, but that special attention should be given to those codes resulting in assignment to the catastrophic category.

Recommendation 12: Reassigning Patients with Guillain-Barré Syndrome

The Secretary should reassign patients with Guillain-Barré Syndrome from DRGs 18 and 19 to DRG 20, DRG 34, or a new DRG.

In its March 1989 report, ProPAC recommended reassigning patients with Guillain-Barré Syndrome to one of two alternative DRGs, or to a new DRG. Commission analysis showed that resource use for GBS patients differs markedly from the resource use for the average patient in DRGs 18 and 19. Furthermore, the payment hospitals receive for most GBS patients under DRGs 18 and 19 is inadequate. The Commission examined DRGs 20 and 34 as alternative DRGs for assignment of GBS patients. Assigning GBS patients to either of these DRGs would better reflect the resource use of these cases and would be clinically acceptable. A new DRG would also be a satisfactory classification alternative.

The Commission continues to support the reassignment of GBS patients to an alternative DRG. ProPAC is aware of the Secretary's current efforts to refine the DRG classification system for all patients. Full implementation of this DRG refinement, however, will most likely occur over the next

several years. The Commission believes that immediately reassigning GBS patients is needed to address the short-term payment inequities for GBS patients.

In addition, the Commission continues to be concerned about a subset of GBS patients: those with tracheostomy. The Commission is aware that, within the overall DRG refinement efforts, the Secretary is evaluating several alternative classification schemes for reassigning all tracheostomy cases. ProPAC supports the Secretary's actions and believes it would be more appropriate to classify GBS tracheostomy patients with other tracheostomy cases.

Improving the Data Used for Decision Making

Recommendation 13: Improving the Medicare Cost Report Data Used for Calculating Total Margins

The Secretary should place more emphasis on auditing and processing the income statement section of the Medicare Cost Report.

The role of the Medicare Cost Report is changing from a reimbursement tool to a vital information source for payment policy evaluation and decision making. The Commission has recommended previously that the MCR be modified to improve its usefulness for decision making. The Commission is pleased with the progress the Secretary has made in reducing the time required to make the data available for analysis and in testing an expanded cost report format.

The Secretary can continue to improve the usefulness of existing cost report data by ensuring its accuracy. Since the implementation of PPS, HCFA has concentrated its auditing and processing efforts on data that continue to be required for determining cost-based reimbursement. The cost report contains some data, however, that are not used in calculating reimbursable costs and yet are important for decision making. The hospital income statement data represent an important example.

The MCR income statement can be used to calculate total margins for analyzing overall financial status by hospital group. These margins reflect

patient revenue from all payers as well as revenue from philanthropy, business ventures, and other non-patient care activities. Total margin data are frequently a useful adjunct to Medicare data for evaluating payment policy. They also support analysis of policies that are outside of the Medicare program, but affect hospital operation and financing.

For several years, ProPAC and other interested organizations did not use the MCR total margin data because of questions regarding its accuracy. The national average total margin calculated from the MCR was found consistently to be higher than the same statistic reported by the American Hospital Association.

This year, ProPAC undertook a study to determine the reasons for this discrepancy. After creating a matched hospital sample, ProPAC found the MCR national average margin to be slightly lower than the same statistic reported by the AHA. There is no way to decide conclusively which statistic is correct. However, many correctable errors in the margins data of the MCR file were discovered during the project. At the same time, there was evidence that the quality of the income statement data has improved over the first four years of PPS.

ProPAC has, as a result of this project, been able to analyze total margins using cost report data with some confidence for the first time. These data have proved useful in the Commission's deliberations on the update factor and other recommendations.

ProPAC plans a second research phase to investigate the reasons for remaining discrepancies between AHA and MCR data for a sample of hospitals. The results should go a long way toward determining whether real accounting differences exist between the two sources.

The Commission will publish a technical report describing the findings of the research project in April, 1990. ProPAC would also be pleased to share the experience it has gained through this research with HCFA.

The Commission urges the Secretary to take the importance of the MCR income statement data into account in determining the resources devoted to auditing and processing. Although the data used to determine Medicare payment are clearly important,

appropriate policy decision making depends on the availability of accurate data on hospitals' overall financial viability. While the Commission recognizes that additional resources may be required for these efforts, the added expense would be justified.

Recommendation 14: Improving Information on Medicare Beneficiaries

The Secretary should collect more comprehensive and timely information on Medicare beneficiaries, including utilization, expenditures, sources of payment, insurance coverage (including out-of-pocket costs), and beneficiary satisfaction and perceptions. The Commission believes that the current approach for collecting this information is not adequate for effective policy development.

The Medicare program is continually being altered through legislation and regulation, yet there is little information on how these changes affect Medicare beneficiaries. Further, scientific and technological advances, along with changes in practice patterns, beneficiary behavior, and beneficiary demographic and socioeconomic characteristics, affect the demand for and use of health care services. Without comprehensive, timely data on Medicare beneficiaries, including service use, expenditures, and payments, it is not possible to assess the impact of changes in the Medicare program on beneficiaries. In addition, it is difficult to develop potential policy changes that best meet the needs of beneficiaries.

The current scope of information on beneficiaries is limited. Administrative data from the claims payment files is restricted to Medicare program expenditures and services. These data cannot be used to estimate expenditures for services not covered by Medicare, provide information on sources of payment, measure family resources, identify the characteristics of beneficiaries that determine their utilization and expenditures, or measure beneficiary perceptions or satisfaction.

Several medical care expenditure surveys, including the National Medicare Care Expenditure Study, the National Medical Care Utilization and Expenditure Survey, and the National Medical Expenditure Survey, collect data on utilization and sources of payment. They are not focused on

Medicare beneficiaries, however. In addition, the surveys are infrequent, slow to produce accessible data, and not directly applicable to Medicare payment policy.

For example, administrative data can be used to estimate the proportion of inpatient hospital expenditures borne by beneficiaries. In 1980, beneficiary liabilities were equal to 6.5 percent of Medicare inpatient hospital expenditures. By 1988 this had risen to 8.7 percent. Administrative data, however, cannot be used to assess whether these increased cost-sharing requirements result in a significant burden to the beneficiaries affected.

Most beneficiaries have supplemental insurance coverage that pays Medicare cost-sharing requirements. Either beneficiaries or employer-sponsored pension plans must pay premiums for this coverage. In addition, about 20 percent of beneficiaries have neither private coverage nor Medicaid. The survey data currently used to estimate these levels of coverage and payment are 10 years old.

To examine the impact of these cost-sharing requirements, more frequently collected data are needed on supplemental coverage, the beneficiaries who do not have such coverage, and the extent of these coverage options. Any efforts to make cost-sharing requirements more consistent with the incentives of PPS would also require more detailed beneficiary data than is now available.

The Commission understands that HCFA is developing a new survey on Medicare beneficiaries, the Current Beneficiary Survey. The Commission supports the effort to gather more comprehensive and timely information on beneficiaries.

Recommendation 15: Linking Data on Hospital and Physician Procedure Volume

The Commission urges the Secretary to begin developing a database that would allow examination of the total volume of selected procedures performed in a hospital. Such a database should include the number of procedures performed by physicians in each hospital in which they practice. It should include data from Medicare and other payers.

Information about the volume of procedures performed by physicians in hospitals is collected by

many different sources. A database that would allow analysis of total procedure volume would be complex, in both structure and data collection efforts. The Commission believes that a project to build such a database should have two components. The first involves linking Medicare data for physicians and hospitals; this is already under way. The second involves linking data from other payers. Initially, data could be collected for those procedures that are of specific relevance to the Medicare population.

Research by ProPAC and others has indicated that many specialized procedures, such as coronary artery bypass graft, are performed more safely and efficiently when they are done frequently. For five of these procedures, ProPAC examined the number of inpatient procedures and the associated mortality rates and costs for Medicare patients. For all five procedures, costs were lower in hospitals with a higher volume of Medicare cases. For three procedures, mortality rates were lower in hospitals with a higher Medicare volume. This work was limited, however, by the inability to examine more than the procedures performed on Medicare patients. It was also not possible to examine the volume of procedures performed by individual physicians.

ProPAC is concerned with the quality of care provided to Medicare beneficiaries, and particularly with the effects of the prospective payment system on quality. The Commission believes that the volume of specialized procedures performed in hospitals is related to the quality of care provided. A database containing total procedure volume data would allow further study in this area. It would permit researchers to examine the relationship between a physician's procedure volume and patient outcomes, as well as between a physician's procedure volume and costs. This same examination could be made for total hospital volume.

Further, there may be an interaction between physician and hospital volume. A database that links both would allow researchers to discern any interaction effect. If future research confirms the relationships between volume and outcomes, and between volume and costs, this information could be used in several ways. These include developing policy recommendations regarding sites of care for Medicare beneficiaries, as well as educating providers about the relationships between volume and outcomes, and volume and costs.

Appendixes

Appendix A. Background Material and Analyses

Appendix A provides background material and analyses to support some of the recommendations in this report. Technical materials on the market basket and the discretionary adjustment factor for PPS and PPS-excluded hospitals will be found here. Background analysis of case-mix change and the indirect medical education adjustment are also

presented. In addition, further detail is provided on the urban and rural standardized amounts. Further analysis supporting Commission decision making is available through ProPAC's Technical Report Series. A complete list of these reports, which can be obtained by contacting the Commission, appears in Appendix B.

MARKET BASKET FORECASTS AND ERROR CORRECTION

The PPS hospital market basket measures the average change in the price of goods and services purchased by hospitals to provide inpatient care. The projected change in the market basket is an integral component of the Commission's update factor recommendation. The projected fiscal year 1991 increase in the PPS market basket, incorporating the Commission's market basket restructuring recommendation, is 5.4 percent.

The PPS hospital market basket consists of many components, which reflect the full range of goods and services hospitals purchase. Each component has a weight that represents its proportion of total hospital expenses. The change in the price of each component is measured by a price proxy. All but one of the price proxies used in the market basket are based on price indexes published by the Bureau of Labor Statistics (BLS). The forecasts for each market basket price proxy are based on complex statistical models that rely on past and current economic information.

Since 1979, Data Resources, Inc. (DRI) has been under contract to HCFA to forecast changes in the PPS hospital market basket. HCFA has used these DRI forecasts in developing its PPS update factors. ProPAC has also used these forecasts when making its update factor recommendations.

DRI updates its PPS market basket forecasts every three months. ProPAC uses the most recently available forecast in making its update recommendation. The forecast used in this report was prepared in January 1990.

Forecast Error Correction

Regardless of the method used to forecast inflation in the market basket, errors are bound to occur that might have substantial financial consequences for hospitals or the Federal government. In its 1985 report to the Secretary, the Commission recommended that the update factor should include a correction for substantial errors made in the previous year's forecast. In other words, in considering the 1991 update, errors in the market basket forecast used to update 1990 payment rates would be corrected. The Commission makes its annual update recommendation, however, part way through

the fiscal year. As a result of these data lags, the correction factor is also a forecast, subject to potentially large changes once final data are available.

For the 1991 update recommendation, the Commission has modified its methodology for calculating forecast errors to compensate for this deficiency. The Commission believes that the forecast error correction should be based on actual data, not a forecast of the error. Thus, errors in the market basket forecast that was used to update 1989 payment rates should be corrected with the 1991 update recommendation.

The Commission also believes that all errors in forecast should be considered, including those specific to the hospital industry. Previously, the Commission's recommendation included a correction factor only for forecast errors in components of the market basket external to the hospital industry. Errors in the forecast of the hospital-specific wage measure were not corrected. The Commission's forecast correction factor now includes errors in the hospital-specific wage measures.

Finally, the Commission believes that only substantial errors in forecasts should be corrected. In the judgment of the Commission, substantial errors are those that equal or exceed 0.25 percentage points.

Market Basket Structure

For fiscal year 1991, the Commission recommends that the Secretary change the construction of the PPS market basket. Specifically, the Commission recommends that the share of wages specific to the hospital industry in Medicare's hospital occupational index be increased from 30 percent to 50 percent. The hospital occupational index is the subset of the market basket for wages and salaries. Under the Commission's recommendation, the hospital occupational index would be used to measure changes in total employee compensation and contract labor expenses, rather than wages alone. Wages, benefits, and contract labor are about 68 percent of total hospital expenses. As a result of these changes, the proportion of the market basket reflecting hospital-industry specific trends would increase from 16 to 34 percent. This would help the total market basket better reflect wage trends unique to the hospital sector.

Under ProPAC's recommendation, the internal wage proxy would be the Employment Cost Index (ECI) compensation series for civilian hospital workers. This is a relatively new wage series developed by the Bureau of Labor Statistics. This wage proxy would be given a relative importance of 50 percent in the hospital occupational index. The internal wage proxy in the market basket currently in use is the Average Hourly Earnings (AHE) for nonsupervisory hospital workers. The AHE price proxy is given a relative importance equal to half the weight given professional and technical workers, or about 30 percent.

Under the Commission's recommendation, the remaining 50 percent of the hospital occupational index would reflect non-hospital wage trends. These would be measured using a combination of nine ECI compensation series reflecting the composition of hospital employees. The modified hospital occupational index is shown in Table A-1. Changes in all hospital employee wages, therefore, would be measured using a 50/50 blend of an

internal wage proxy, the ECI for hospital workers, and external wage proxies using the nine ECI compensation series that reflect the types of workers hospitals employ.

The Commission also recommends constructing a new compensation component for the PPS market basket. The compensation component would combine the current wage and salary category with the benefit category. In addition, contract labor expenses would be included in the new compensation component. The relative importance of the other professional fees component would be reduced. All other market basket components would remain unchanged.

Table A-2 shows the projected increases in the new PPS market basket incorporating the Commission's recommendation. As of February 1990, the market basket forecast under this new construction is 5.4 percent for fiscal year 1991. The forecast under HCFA's current market basket construction is also 5.4 percent.

Table A-1. Relative Importance and Projected Increase for Commission's Recommended Hospital Occupational Index^a

Employment Category	Relative Importance 1982 ^b	Projected Increase 1991	Wage Proxy
All hospital workers	50.0%	6.5%	Employment Cost Index, Compensation Series (ECI-C), for hospital workers
Professionals and technicians	28.6	5.6	ECI-C for professionals and technicians
Managers	3.6	5.9	ECI-C for managers and administrators
Sales	0.2	4.6	ECI-C for sales workers
Clerical	6.3	5.0	ECI-C for clerical workers
Craft and kindred	1.2	4.9	ECI-C for craft and kindred workers
Operatives except transport	0.5	4.2	ECI-C for operatives except transport
Transport operatives	0.1	4.8	ECI-C for transport operatives
Nonfarm laborers	0.1	5.0	ECI-C for nonfarm workers
Service workers	9.4	5.7	ECI-C for service workers
Total	100.0	5.9	

^a The Medicare hospital occupational index is used to measure the rate of increase in the employee compensation component of the Medicare market basket for hospitals.

^b The relative importance for each cost category represents the proportion of a hospital's expenses incurred for these inputs in a 1982 base period. The relative importance changes over time in accordance with price changes in each cost category.

SOURCE: Health Care Financing Administration, Office of the Actuary, February 1990 forecast.

The market basket forecast and relative importance weights do not incorporate HCFA's planned rebasing of the hospital market basket. Rebasing would be expected to change the relative importance weights in both the market basket and the hospital occupational index. It could also affect market basket forecasts. HCFA plans to rebase the market basket before final payment rules are issued for fiscal year 1991 payments.

Market Basket for Excluded Hospitals

HCFA computes a separate market basket for all PPS-excluded facilities combined. The major difference between the PPS market basket and the market basket for excluded facilities is the wages and salaries component. This component comprises 68 percent of the market basket for excluded facilities compared with 58 percent of the PPS market basket. This reflects a different mix of inputs

Table A-2. Components of the Fiscal Year 1991 PPS Market Basket Forecast Used by the Commission^a

Category of Costs	Relative Importance 1982 ^b	Projected Increase 1991	Price Proxy
Employee compensation ^c	66.05%	5.9%	Medicare hospital occupational index ^d
Professional fees	0.37	5.6	
Medical fees	0.00	NA	
Other fees	0.37	5.6	ECl professional and technical workers
Capital	0.00	NA	
Utilities	3.16	3.3	
Fuel oil, coal, and other fuel	1.15	1.4	Producer Price Index (PPI) middle distillates
Electricity	1.09	2.9	PPI industrial electric power
Natural gas	0.47	8.9	PPI gas fuels
Motor gasoline	0.42	1.0	PPI gasoline
Water and sewage	0.03	7.8	CPI water and sewage maintenance
Malpractice insurance	0.66	2.0	Hospital malpractice insurance premiums
All other products	21.05	4.5	
Pharmaceuticals	4.10	8.0	PPI ethical (prescription) preparations
Food	3.56	3.7	
Contract services	2.27	3.0	CPI food purchased away from home
Direct purchase	1.29	4.9	PPI processed food
Chemicals and cleaning products	3.13	3.3	PPI industrial chemical products
Surgical and medical instruments	2.38	2.0	PPI medical and surgical instruments
Photographic supplies	2.26	2.3	PPI photographic supplies
Rubber and plastics	2.16	2.6	PPI rubber and plastic products
Paper products	1.19	4.8	PPI composite paper price index
Apparel	1.08	2.6	PPI textile house furnishings
Minor machinery and equipment	0.43	3.6	PPI machinery and equipment
Miscellaneous products	0.76	3.5	PPI all finished goods
All other services	8.74	4.9	
Business services	3.02	4.6	AHE business services
Computer and data processing	1.40	6.5	AHE computer services
Transportation and shipping	1.06	3.7	CPI transportation
Telephone	0.76	3.6	CPI telephone services
Blood services	0.54	2.8	PPI blood and related biologicals
Postage	0.32	6.5	CPI postage
All other services: labor intensive	0.97	5.7	ECl all service workers
All other services: nonlabor intensive	0.65	4.3	CPI all items
Total	100.00	5.4	

^a Excludes capital, medical education, and medical professional fees.

^b The relative importance for each cost category represents the proportion of a hospital's expenses incurred for these inputs in a 1982 base period. The relative importance changes over time in accordance with price changes in each cost category.

^c Includes wage, salary, benefit, and contract labor expenses.

^d This is the hospital occupational index recommended by ProPAC. It uses a combination of wage price proxies based on occupational categories: nine different Employment Cost Indexes external to the hospital industry and one internal to the hospital industry.

SOURCE: Health Care Financing Administration, Office of the Actuary, February 1990 forecast.

between PPS hospitals and excluded facilities. As a result, changes in wages affect the PPS-excluded market basket slightly more than the PPS market basket.

The market basket for excluded facilities would also be affected by the Commission's market basket structure recommendation. Excluded facilities would use the hospital occupational index shown in Table A-1. This hospital occupational index would be applied to a new compensation component

in the excluded market basket. The compensation component would combine the current wage and salary category with the benefit category. Because excluded facilities are more labor intensive than PPS and children's hospitals, the proportion of the total market basket reflecting compensation would continue to be higher for excluded hospitals. Thus, the Commission's recommended change in market basket composition would affect the updates for excluded facilities at least as much as the updates for PPS hospitals.

THE DISCRETIONARY ADJUSTMENT FACTOR FOR PPS HOSPITALS AND PPS-EXCLUDED HOSPITALS AND UNITS

The discretionary adjustment factor (DAF) is composed of the scientific and technological advancement allowance and the productivity improvement adjustment. In developing the DAF recommendation, the Commission is concerned with determining the appropriate effects of technological advancement and productivity change on Medicare payments to hospitals. Both DAF components are future-oriented policy targets.

ProPAC's recommendations are based in part on estimates of productivity change and the cost of technological advances for PPS and PPS-excluded hospitals. In the following sections, the two components of the DAF and the methodology and results of the ProPAC analyses used for each are discussed in greater detail. In the final section, the Commission's DAF decisions for fiscal year 1991 are summarized.

Scientific and Technological Advancement in PPS Hospitals

The scientific and technological advancement allowance reflects expected increases in hospitals' Medicare inpatient operating costs due to advances in technology. It represents the Commission's judgment about the appropriate level of financing for scientific advances in fiscal year 1991.

Concepts and Study Methodology—The allowance is based on estimates of the incremental costs of care attributable to cost-increasing, quality-enhancing technologies. In arriving at a judgment regarding the allowance, the Commission distinguishes between existing cases and new cases. Only the costs associated with existing cases are included in the allowance. These are admissions that would have occurred even if a new technology were not available. The costs associated with new cases, or patients admitted solely because a new technology is available, are not included because they generate a full DRG payment. In addition, other costs associated with increases in case complexity are accounted for in the case-mix change component of the update factor.

Project HOPE, under contract to the Commission, estimated the incremental costs of cost-increasing, quality-enhancing technologies. The study was expanded this year to include additional technologies. The study was also modified to make estimates of incremental costs in existing cases for each technology rather than in aggregate. Project HOPE also estimated the incremental costs of a set of cost-decreasing technologies. However, the effect of these technologies is considered implicitly in the productivity adjustment rather than being included in the scientific and technological advancement allowance.

The primary sources of information for this analysis were medical and health policy literature, telephone interviews with medical and industry experts, and consultations with technology experts. Based on its information, Project HOPE estimated the number of existing cases and the incremental operating cost per case expected in 1991 for each technology. For each technology, Project HOPE made a high, low, and best estimate.

Each technology included in the estimate of the allowance met four criteria. First, the technology should have a significant effect on Medicare operating costs. Second, it should be at least 5 percent diffused in the Medicare population. Third, it should be no more than 75 percent diffused in the Medicare population. Finally, the technology should be safe and effective.

Methodology Limitations—The estimates described above are subject to several limitations. First, they do not capture all relevant costs. For example, costs from improvements in widely diffused technologies, the adoption of low-cost technologies, and subtle changes in practice patterns are not measured. Second, the estimates reflect only technologies adopted systemwide. Third, the estimates are based on projections of costs and future rates of adoption and use. Finally, the estimates do not account for offsetting changes in revenue due to changes in DRG assignment. Despite these limitations, the Commission has found this technology-specific approach useful for deriving more informed estimates.

Study Results—Project HOPE identified 20 cost-increasing, quality-enhancing technologies to

include in the allowance. The estimated incremental impact of these technologies on inpatient operating costs ranges from \$217 million to \$406 million, with a best estimate of \$312 million. Based on the best estimate of incremental costs in fiscal year 1991, Medicare inpatient operating payments would have to increase approximately 0.7 percent.

Table A-3 shows the incremental cost estimates from existing cases for each cost-increasing technology. (Note that technology-specific cost estimates given in this table in prior years included both new and existing cases.) The implantable defibrillator has the largest estimate of additional costs of all technologies. Thrombolytic agents and the low osmolar and nonionic contrast agents are the next two largest estimates.

Table A-3. Estimated Fiscal Year 1991 Incremental Medicare Cost Impact of Cost-Increasing Technologies in Existing Cases in PPS Hospitals

Technology	Amount (In Millions)		
	Low	High	Best
Atherectomy	\$ 2.2	\$ 3.1	\$ 2.7
Computers (advances)	4.0	6.4	5.2
Customized orthopedic prosthetics	1.1	1.3	1.2
Electrophysiologic studies	10.1	15.8	13.0
Implantable defibrillators	75.0	116.3	95.7
Lead replacements	3.5	3.5	3.5
Implantable infusion pumps	1.8	7.4	4.6
Interferon	0.1	0.4	0.2
Laser angioplasty	13.3	18.7	16.0
Left ventricular assist device	2.6	4.1	3.3
Lithotripsy for kidney stones	0.5	1.3	0.9
Low osmolar and nonionic contrast agents	8.8	67.0	37.9
Magnetic resonance imaging	6.8	11.4	9.1
Monoclonal antibody imaging agents	8.4	16.8	12.6
Pacemakers (advances)	14.9	22.3	18.6
Percutaneous transluminal angioplasty	1.7	2.4	2.1
Percutaneous transluminal coronary angioplasty	16.5	23.1	19.8
Positron emission tomography	2.9	5.8	4.4
Pulse oximetry--carbon dioxide monitors	4.5	4.5	4.5
Single photon emission computed tomography	8.1	12.3	10.2
Thrombolytic agents	27.5	51.0	39.3
Ultrasound (advances)	3.2	11.2	7.2
Total	217.4	406.1	312.0

SOURCE: Project HOPE under contract to ProPAC.

In 1989, 13 cost-increasing technologies were studied with estimated incremental costs of \$107 million in fiscal year 1990. This would have resulted in a 0.3 percent increase in Medicare inpatient operating payments.

The \$312 million estimate for fiscal year 1991 is considerably higher than the \$107 million estimated for fiscal year 1990 for two reasons. First, more technologies were studied this year because the scope of the project was expanded. Second, the estimate of incremental costs for the same technologies studied last year more than doubled.

Table A-4 shows the incremental cost estimates from existing cases for each technology with cost-decreasing effects. Some of the technologies have both cost-decreasing and cost-increasing effects depending on the type of case.

Scientific and Technological Advancement in PPS-Excluded Hospitals and Units

The scientific and technological advancement allowance for PPS-excluded hospitals and distinct-part units reflects increases in the same types of

costs as the allowance for PPS hospitals. The Commission also applied the same approach for psychiatric, rehabilitation, and long-term facilities that it used for PPS hospitals. Cost estimates for existing cases were made for technologies that affect hospitals' Medicare inpatient operating costs. Project HOPE used the same criteria and process for identifying technologies and making estimates. This approach has the same limitations discussed for PPS hospitals.

For fiscal year 1991, incremental costs were estimated for eight technologies found in the three types of facilities. Total costs are estimated to increase from \$11 million to \$23 million, with a best estimate of \$17 million. Payments for Medicare inpatient operating costs in PPS-excluded facilities would need to increase by 1.0 percent, based on the best estimate. Table A-5 shows the estimated cost increases for each technology in the three types of facilities.

Productivity Change in PPS Hospitals

The productivity adjustment for PPS hospitals represents the savings anticipated from achieving a

Table A-4. Estimated Fiscal Year 1991 Incremental Medicare Cost Impact of Cost-Decreasing Technologies in Existing Cases in PPS Hospitals

Technology*	Amount (In Millions)		
	Low	High	Best
Atherectomy	\$ -6.3	\$ -8.8	\$ -7.6
Endoscopic procedures (advances)	-25.9	-40.7	-33.4
Gallstone lithotripsy	-44.8	-44.8	-44.8
Laser lithotripsy	-6.3	-15.6	-11.0
Lithotripsy for kidney and ureteral stones	-5.6	-16.2	-10.9
Pacemakers (advances)	-0.1	-0.2	-0.2
Percutaneous transluminal angioplasty	-33.8	-47.3	-40.6
Percutaneous transluminal coronary angioplasty	-75.0	-105.0	-90.0
Stereotactic radiosurgery	-0.4	-1.2	-0.8
Total	-198.1	-279.6	-239.1

* These cost-decreasing technologies have the potential to save money relative to the technologies they are replacing. However, it is recognized that there is a great deal of uncertainty surrounding these estimates and that, as in the past, potentially cost-saving technologies may end up increasing costs in the aggregate due to increased utilization.

SOURCE: Project HOPE under contract to ProPAC.

Table A-5. Estimated Fiscal Year 1991 Incremental Medicare Cost Impact of Cost-Increasing Technologies in Existing Cases in Psychiatric and Rehabilitation Hospitals and Distinct-Part Units and Long-Term Hospitals

Technology	Best Estimate (In Thousands)
Psychiatric	
Clozapine	\$6,900
Positron emission tomography	4,900
Magnetic resonance imaging	2,600
Fluoxetine hydrochloride	1,100
Rehabilitation	
Video and computer-based urodynamic studies	497
Magnetic resonance imaging	489
Augmentative communication devices	149
Customized plastic orthotics	118
Pulse oximetry-carbon dioxide monitors	27
Long-Term	
Urodynamic studies	27
Pulse oximetry-carbon dioxide monitors	4

SOURCE: Project HOPE under contract to ProPAC.

productivity goal. It accounts for the productivity improvement resulting from the PPS incentive to reduce the number and cost of resources used to treat patients. Past productivity trends serve as a guidepost in the Commission's determination of a productivity target for the future.

Productivity Concepts and Study Methodology—Productivity is defined as the ratio of inputs to outputs. Increased productivity implies that the hospital is either producing more output with the same resources, or the same output with fewer resources.

The Commission uses number of full-time equivalent employees (FTEs) as its input measure. Traditionally, it has defined output as the number of admissions, with an adjustment for real case-mix change. The resulting productivity measure of FTEs per admission implicitly assumes that hospital services are inputs contributing to the quality of the final output, a completed admission.

This year, ProPAC also developed an alternative productivity indicator using an output measure based on hospital services (lab tests, days of nursing care, and so forth). This output measure is

equivalent to admissions adjusted for both real case-mix change and change in case-mix constant intensity of services. The alternative productivity measure assumes that all hospital services are outputs. This assumption is reasonable only if all services contribute to the quality of the ultimate product.

ProPAC believes that the alternative measure based on services as output is useful in assessing overall industry productivity. It also helps in understanding the continued hospital cost inflation of the 1980s. For purposes of setting the DAF, however, the Commission relied primarily on the traditional measure. The FTEs per admission measure mirrors the Commission's usual cost per admission calculations as well as the case-based payment of PPS. Moreover, the Commission was not confident that all intensity of service increases observed in recent years were critical to the quality of care, as use of the alternative productivity measure would imply.

Data for measuring number of hospital admissions, FTEs, and total charges were obtained from the American Hospital Association Annual Survey. The case-mix change data are ProPAC estimates.

The measure of hospital service output is based on the sum of hospitals' posted charges. Total charges increase when more patients are treated or when patients are treated with a greater number or complexity of chargeable services. Of course, an increase in total charges also occurs when hospitals raise their prices. To isolate the output change, the effect of price increases was removed using the Hospital and Related Services component of the Consumer Price Index (CPI).

In addition to its use in the Commission's alternative productivity measure, the service output measure was used to quantify case-mix constant intensity of services. Change in case-mix constant intensity is equal to change in total service output less the changes in adjusted admissions and real case mix.

Methodology Limitations—The Commission's productivity measurements are subject to several limitations. The Commission took these limitations into account in assessing the industry productivity trend and forming expectations for future productivity performance.

Two conceptual problems with the analysis are that: (1) the FTEs measure does not reflect the contribution of capital or other non-labor inputs, and (2) it is impossible to account fully for quality enhancements in the hospital product. These problems are not unique. The majority of analyses within the health care field and in other industries use only labor input measures. And virtually all productivity analyses suffer to one degree or another from the inability to measure quality improvements.

There are two constraints on the accuracy of the FTEs data. First, the data do not include contract labor. Use of contract labor has probably increased in recent years. If this is true, measurement of the increase in FTEs is understated, which in turn overstates productivity improvement or understates productivity decline. Second, the Annual Survey reports FTEs employed on the last day of the year, which is not necessarily an accurate reflection of the labor hours used throughout the year.

Using the Commission's real case-mix change estimates to adjust admissions required that Medicare data be extrapolated to the entire population. No information is available to test the validity of the assumption that case-mix change has been comparable for the over- and under-65 populations.

The accuracy of ProPAC's alternative productivity measure is dependent on two factors. The first is how well hospital charges reflect the costs of individual service units. The analysis addresses only the change in hospital output. But hospitals raising prices differentially for marketing or other reasons will create a bias. The extent of the problem is unknown, just as the effect of differential pricing on the charge-based DRG weights is unknown.

The second factor is how well the hospital component of the CPI reflects hospital price increases. A favorable feature of the hospital CPI for this analysis is that it is based on the same data source as total charges, hospitals' posted prices. In addition, a broad array of hospital services is represented in the index using a random selection technique that ensures representativeness. The weights used for aggregating the price increases of individual service units are updated regularly.

Study Results—Table A-6 shows annual percentage changes for the three components of hospital output, adjusted admissions, case mix, and case-mix constant intensity of services. Intensity of services increased in most years beyond the extent to which it is reflected in ProPAC's case-mix change estimate. However, case-mix constant intensity declined in the first two years of prospective payment. This is probably due to efforts to review and control length of stay, as well as ancillary service usage, following the introduction of PPS. Outpatient adjusted admissions declined steadily after PPS began, but increased in 1988. Real case-mix change has always been positive.

Table A-6. Percent Change in PPS Hospital Output, by Component

Year	Adjusted Admissions *	Real Case-Mix	Case-Mix Constant Intensity	Total Service Output
1981	0.4%	1.0%	2.6%	4.0%
1982	0.6	1.0	2.2	3.8
1983	-0.5	1.0	3.0	3.5
1984	-1.4	2.2	-2.0	-1.2
1985	-2.3	2.4	-1.5	-1.4
1986	-1.0	2.1	2.0	3.1
1987	-0.5	1.8	2.6	3.9
1988	1.2	1.8	0.8	3.8
Average annual change:				
1981--1983	0.2%	1.0%	2.6%	3.8%
1984--1988	-0.8	2.1	0.4	1.7

* Adjusted for outpatient activity.

SOURCE: ProPAC analysis using data from the American Hospital Association Annual Survey and the Hospitals and Related Services Component of the Consumer Price Index.

Table A-7 compares annual changes in the traditional and alternative productivity measures. In this table, a decline in FTEs per unit of output represents an improvement in productivity.

FTEs per admission (the traditional measure) declined in the first two years of PPS, and then increased in the next two years. In 1988, the trend may have reversed again, with a 0.3 percent decline. However, this modest productivity improvement in 1988 was aided by an increase in outpatient adjusted admissions that year. Thus, it is unclear whether a downward trend in FTEs per admission is really developing.

Table A-7. Percent Change in the Ratios of FTEs to Alternative Output Units

Year	Ratio of FTEs to Admissions ^{a,b}	Ratio of FTEs to Hospital Services ^b	Impact of More Comprehensive Output Measure
1981	3.1%	0.6%	-2.6%
1982	0.8	-1.4	-2.2
1983	0.4	-2.6	-3.0
1984	-2.8	-0.7	2.1
1985	-0.6	0.9	1.5
1986	0.6	-1.4	-2.0
1987	1.6	-0.9	-2.5
1988	-0.3	-1.1	-0.8
Average annual change:			
1981--1983	1.4%	-1.2%	-2.6%
1984--1988	-0.3	-0.7	-0.4

^a Admissions adjusted for outpatient activity and real case-mix change.

^b FTEs adjusted for skill-mix change.

SOURCE: ProPAC analysis using data from the American Hospital Association Annual Survey and the Hospitals and Related Services Component of the Consumer Price Index.

When the hospital services output measure is used in the productivity indicator (the alternative measure), hospitals' productivity performance is better on average. The difference lies in the alternative methods of assessing hospital output. FTEs per admission does not account for increase in the intensity of services beyond that included in the Commission's estimate of real case-mix change. The ratio of FTEs to hospital services does account for such intensity change.

Using the hospital services output measure leads to the conclusion that hospital labor productivity has been steadily increasing. This increase has totaled 3.3 percent since PPS began (see Figure A-1). Using ProPAC's traditional measure, productivity has declined cumulatively during the 1980s. However, an improvement of 1.4 percent has been shown during the PPS years. (Note that an increase in productivity as indicated by an upward trend line on this graph results from a decline in FTEs per unit of output on Table A-7.)

The pattern of productivity and intensity changes can be associated with some distinct phases of PPS. Figure A-2, which graphs the annual percentage changes in productivity using the two measures, is useful in examining this pattern. In the first two years, hospitals were uncertain about the consequences of PPS. During this time, intensity was reduced with some productivity improvement.

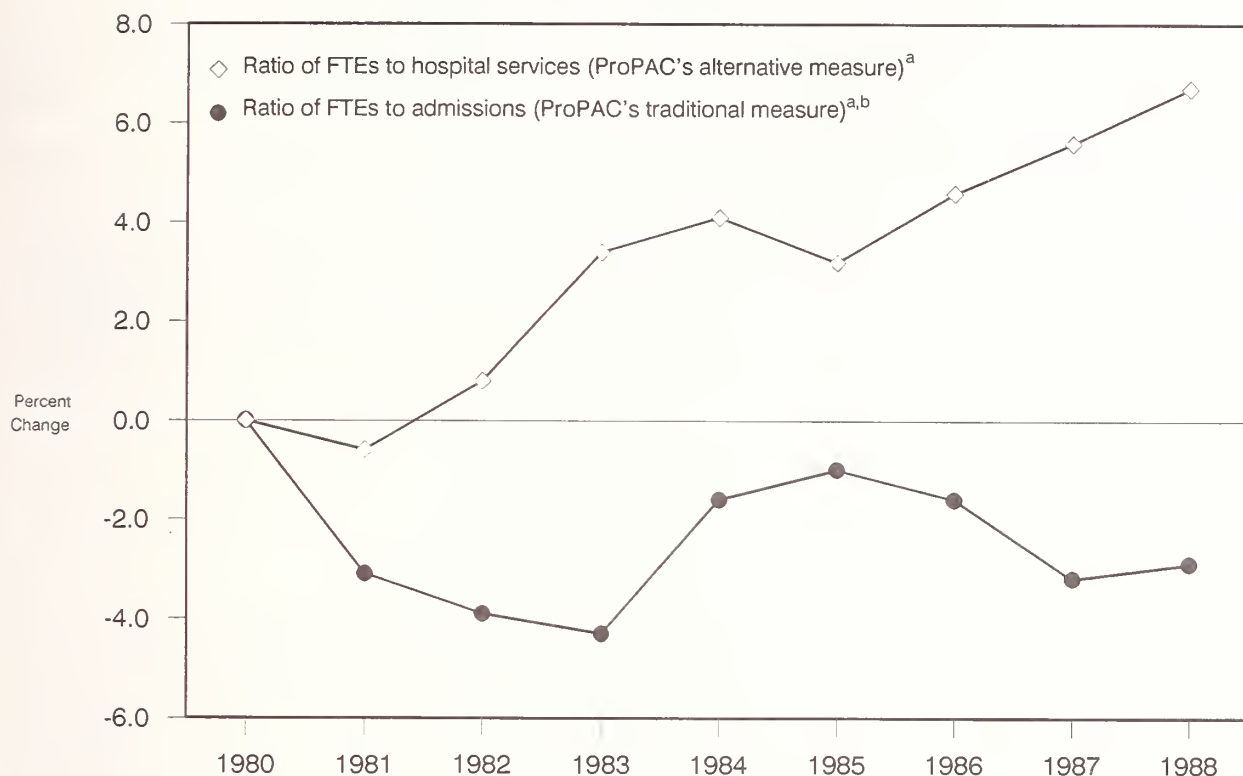
In the next two years, hospitals were bolstered by the high early PPS margins. During this time, intensity rose, producing an increase in FTEs per admission. More recently, hospitals have experienced financial pressure, and intensity increases once again appear to be moderating.

As noted earlier, accounting for intensity increases in the output measure used to assess productivity does not imply that all services are valuable in improving patient outcomes. The alternative productivity measure shows only that hospitals have become more efficient in producing the services they elected to provide. The Commission believes the industry has not necessarily become more cost-effective overall.

Productivity Change in PPS-Excluded Facilities

The Commission uses the same approach for measuring productivity in PPS-excluded hospitals as it uses for those covered by prospective payment. Change in FTEs per admission was measured for psychiatric, rehabilitation, and long-term hospitals. For these facilities, however, data were not available to adjust admissions for real case-mix change. It also was not feasible to measure productivity for psychiatric and rehabilitation distinct-part units.

Figure A-1. Cumulative Productivity Change Using Alternative Productivity Measures



^a FTEs adjusted for skill-mix change.

^b Admissions adjusted for outpatient activity and real case-mix change.

SOURCE: ProPAC analysis using data from the American Hospital Association Annual Survey and the Hospitals and Related Services Component of the Consumer Price Index.

To improve the accuracy of the measurements for psychiatric and rehabilitation hospitals, the analysis controlled for short- and long-term status. This approach was taken because the number of short-term hospitals in each of these categories has grown significantly since 1980, while the number of long-term institutions has declined slightly.

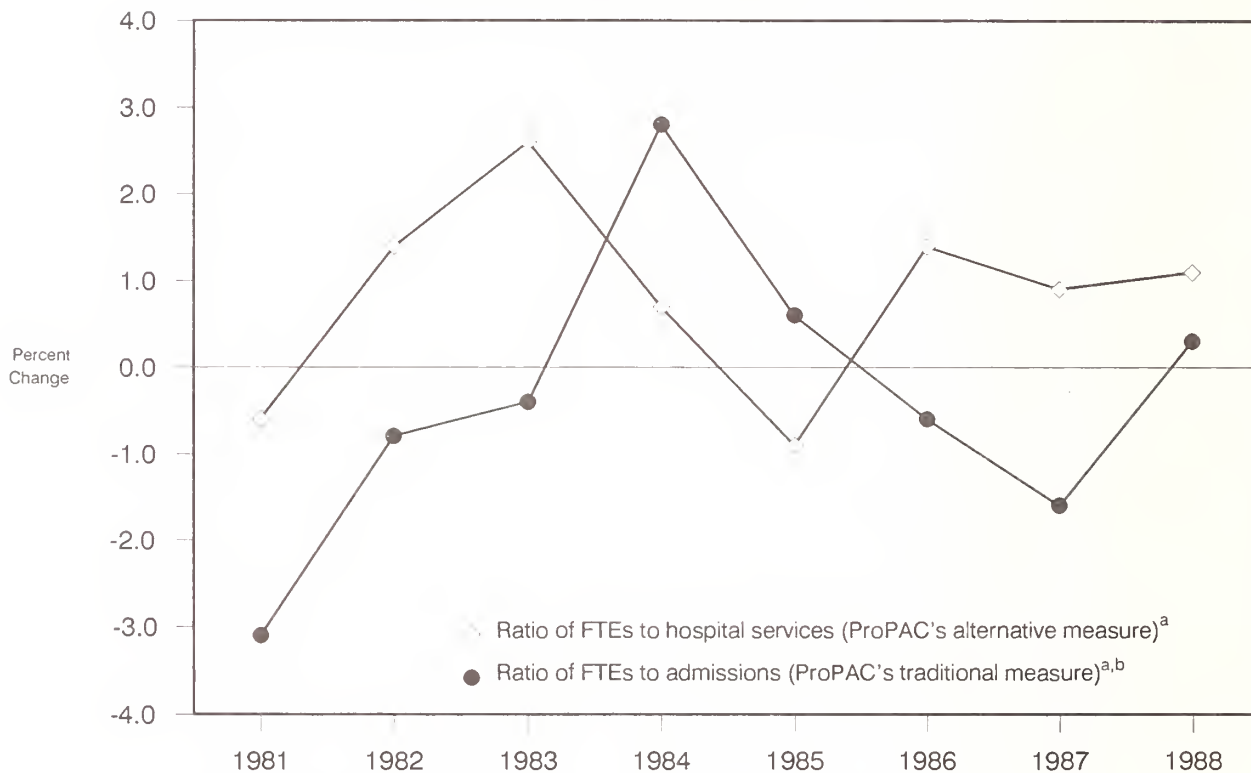
Productivity trends for the three groups of PPS-excluded hospitals are shown in Table A-8. In this table, a decline in FTEs per admission connotes an improvement in productivity. The pattern of productivity change in excluded hospitals is similar to that of PPS hospitals, except that it corresponds to the introduction of TEFRA payment limits in 1982 rather than to PPS in 1983. In the first two years of TEFRA, excluded hospitals reduced their FTEs per admission. In each of the next four years,

however, FTEs per admission increased. The largest increase was 5.7 percent in 1987, followed by 2.7 percent in 1988.

While the pattern of productivity change paralleled PPS hospitals, the cumulative productivity decline in excluded hospitals has been greater than that of PPS hospitals. However, the results are not directly comparable due to the inability to account for case-mix change, smaller sample sizes, and the entry of more new hospitals in the PPS-excluded group.

Since TEFRA began, FTEs per admission in psychiatric hospitals has increased an average of 1.7 percent per year, substantially more than either of the other two groups. The long-term hospitals increased an average of 0.2 percent per year, while

Figure A-2. Annual Productivity Changes Using Alternative Productivity Measures



^a FTEs adjusted for skill-mix change.

^b Admissions adjusted for outpatient activity and real case-mix change.

SOURCE: ProPAC analysis using data from the American Hospital Association Annual Survey and the Hospitals and Related Services Component of the Consumer Price Index.

Table A-8. Percent Change in FTEs Per Admission in PPS-Excluded Hospitals*

Year	Psychiatric Hospitals	Rehabilitation Hospitals	Long-Term Hospitals	All PPS-Excluded Hospitals
1981	-3.0%	2.4%	4.4%	-1.4%
1982	2.5	2.2	1.8	2.4
1983	-0.3	-8.4	0.2	-1.0
1984	-2.9	4.4	-4.5	-2.5
1985	3.1	-1.3	-2.6	1.8
1986	1.1	1.2	-1.6	0.7
1987	6.4	-0.5	6.8	5.7
1988	2.9	-0.5	3.5	2.7
Average annual change:				
1981--1982	-0.3%	2.3%	3.1%	0.5%
1983--1988	1.7	-0.9	0.2	1.2

* FTEs adjusted for skill-mix change, and admissions adjusted for outpatient activity.

SOURCE: ProPAC analysis using data from the American Hospital Association Annual Survey.

the rehabilitation hospitals had an annual decline of 0.9 percent. The performance of rehabilitation hospitals was aided by an increase in admissions volume, while the number of admissions per hospital in the other two groups has declined in recent years.

The Commission's DAF Decision

The Commission made the same DAF recommendation for both PPS and PPS-excluded hospitals. ProPAC concluded that in fiscal year 1991, the adjustment for productivity improvement should offset the allowance for scientific and technological

advancement, resulting in a DAF of zero. For several years, the Commission has maintained the policy that productivity gains should be shared equally by the Medicare program and the hospital industry. This means that productivity gains that are at least twice the best estimate of the cost of major new technological improvements, or 0.7 percent, are believed to be feasible for PPS hospitals in fiscal year 1991. Recommending a DAF of zero, despite evidence of increases in the cost of new technology, reflects the Commission's belief that it more important than ever for the DAF to provide an incentive for hospitals to improve productivity.

CASE-MIX CHANGE

The DRG case-mix index (CMI) is the average DRG weight for all cases paid under PPS. Therefore, any increase in the CMI results in a corresponding increase in hospital payments. The CMI may increase because of real case-mix change or because of upcoding. Real case-mix change is defined as changes in patient resource requirements caused by changes in the mix of patients or their treatments. Upcoding is defined as changes in medical record documentation or coding practices that result in assignment of cases to higher-weighted DRGs.

The Commission makes an annual case-mix adjustment to the update factor for two reasons. Upcoding results in a higher CMI, but does not reflect changes in patient resource requirements. Therefore, it is not appropriate for hospital base payment rates to reflect this portion of CMI change. On the other hand, the CMI does not entirely capture changes in resource requirements resulting from increases in patient complexity within DRGs. ProPAC believes that hospitals should also be compensated for this unmeasured portion of real case-mix change, referred to as within-DRG case complexity change.

The Commission has been working to develop better methods of measuring the components of case-mix change to adjust the update factor appropriately. This has been difficult because the forces affecting case-mix change are complex, and the data for examining it are not readily available. Although ProPAC has improved its information regarding case-mix change components, the final recommendation must still rely heavily on the Commission's judgment.

The studies and methods the Commission used to estimate each case-mix change component and to arrive at its final recommendation are described below.

CMI Change

Since the beginning of PPS, year-to-year CMI change generally has declined. From 1984 to 1985, the average CMI increased 4.4 percent. From 1986 to 1987, the increase was 2.6 percent. In 1988, however, the CMI increased 3.6 percent, which is

out of line with the general trend. This increase is primarily due to two changes in the DRG Grouper (the software that HCFA uses to assign cases to DRGs). Age was eliminated as a DRG classification criterion, and two heavily weighted DRGs were created that included mechanical ventilation and tracheostomy as classification criteria. Both of these changes provided hospitals with incentives to further improve their medical record documentation practices.

ProPAC believes that CMI changes due primarily to upcoding are large in the first year that incentives to upcode occur, and fall off quickly afterward. This conclusion is based on the pattern observed for hospitals under PPS since its inception and on the experience of New York and Massachusetts hospitals, which came under PPS later. Preliminary data for 1989 support ProPAC's expectations. Comparing the 1989 CMI (calculated with data available through June 1989) with the 1988 CMI (calculated with data available through June 1988) yields an increase of 2.9 percent—considerably smaller than the 3.6 percent change in the previous year.

On the basis of the CMI trend prior to 1988, the Commission expects CMI change to decline gradually to an almost steady-state level (absent any major changes in upcoding). Accordingly, the CMI change for 1990 is projected to be 2.7 percent, slightly less than the change for 1989.

Real CMI Change

The Commission believes that as the total amount of CMI change declines, the proportion that reflects real changes in patient care requirements increases. ProPAC's estimates of real CMI change are built on this logic, along with preliminary empirical evidence provided by a major study of real case-mix change conducted by the RAND Corporation for HCFA and ProPAC.

This study compared coded information from medical records with recoded data from the same records, apportioning CMI change into real and upcoding components. The contractor used medical record data from fiscal years 1987 and 1988. The medical records were collected by the SuperPRO.

The SuperPRO is under contract with HCFA to monitor and evaluate PRO performance. As part of its activities, the SuperPRO reabstracts a sample of medical records that were reviewed by the PROs. For this study, the SuperPRO coded the medical records again, using consistent coding rules across the years. Because the SuperPRO has no incentive to upcode and its coders are well trained, DRG assignments from the recoded data are considered highly reliable.

The estimate of upcoding is made by comparing DRG assignments from the hospital's coded data with DRG assignments from the SuperPRO's original and recoded data. Real CMI change is estimated to be the difference between the 1987 and 1988 CMIs calculated with data coded by the SuperPRO.

Preliminary results indicate that approximately one-third of the 3.6 percent CMI change observed between 1987 and 1988 was due to real case-mix change. The study confirmed that a significant portion of the CMI change was due to Grouper changes. The CMI calculated with the SuperPRO recoded data was very similar to the CMI calculated with the original hospital data. The SuperPRO assigned lower-weighted DRGs than the hospitals did in approximately the same proportion of cases as it assigned higher-weighted DRGs.

This estimate of real case-mix change may be overstated because of continued improvements in medical record documentation. Evidence indicates that physicians and other health care practitioners now are providing more information on the medical record. Although this would tend to raise CMIs, it does not represent real case-mix change.

The 1990 CMI change is projected to be 2.7 percent. The Commission estimates that 1.5 percentage points represent real changes in patient resource use.

Within-DRG Case-Complexity Change

Before 1989, the Commission's recommendation on within-DRG case-complexity change was based primarily on information from the Commission on Professional and Hospital Activities. These

data showed that, holding DRG constant, a higher number of unique body systems were involved in the average case since the implementation of PPS, indicating an increase in case complexity. Further, the decline in admissions in the early years of PPS suggested that an increasing proportion of less complex cases were being treated out of the hospital.

For the past two years, the Commission's estimates of case-complexity change have been based on analysis by SysMetrics/McGraw-Hill, Inc. The contractor developed a database of a 10 percent stratified random sample of PPS hospitals. The resulting sample was representative of all PPS hospitals. For this set of hospitals, all discharge records were obtained from fiscal years 1986 through 1988. Two alternative patient classification systems, Disease Staging and Patient Management Categories (PMCs), were used to measure changes in patient complexity.

After cases were assigned to DRGs, they were classified both by Disease Staging and by PMCs. This allowed measurement of increases in complexity by both classification systems, while holding DRG constant. Using this methodology, the contractor developed two trend estimates of case-complexity change. Using Disease Staging, case complexity increased 1.2 percent in 1987 and 0.8 percent in 1988. Using PMCs, case complexity increased 0.8 percent in 1987 and 0.8 percent in 1988.

There are two causes of case-complexity increases. First, the average patient may have a more complex principal diagnosis or condition. Second, the average patient may have more complications or comorbidities. Increases due to both causes may reflect real change or medical record coding practices. Because Disease Staging incorporates information on more diagnoses and procedures, estimates of case-complexity change based on Disease Staging are more subject to upcoding than those based on PMCs.

Based on this information, the Commission judged that the appropriate estimate of within-DRG case-complexity change for 1990 is 0.7 percent.

Future Analyses

CMI change continues to be a major source of payment increases to hospitals. The Commission's methods for differentiating real case-mix change from upcoding have improved significantly over the past few years, but remain inexact. The RAND reabstraction study has provided valuable informa-

tion on this issue. It is not clear, however, whether this study can be replicated in the future. The 1989 medical records available to the SuperPRO will not be sufficiently representative of national trends. The Commission, however, will work with HCFA to continue to investigate the reasons for case-mix change.

INDIRECT MEDICAL EDUCATION ADJUSTMENT

Since 1979, Medicare hospital payment policy has explicitly recognized the higher costs of patient care incurred by teaching hospitals in two ways. First, Medicare's share of the direct costs of hospital-operated medical education programs have been identified and paid separately. These costs are predominantly made up of the salaries of residents and faculty. Second, an adjustment has been made for the higher costs of patient treatment indirectly associated with medical education programs. Among the factors contributing to these higher costs are the greater use of ancillary services, a more severely ill patient mix, location in inner cities, and a more costly mix of staffing and facilities. The indirect medical education (IME) adjustment, was made first to the per diem and then per-case reimbursement limits, and subsequently to prospective payment rates.

The Commission has expressed its concerns about the empirical base for the current level of the IME adjustment. To address these concerns, ProPAC convened a technical advisory panel in November 1987 to review the various analytic methods used to determine the impact of teaching activity on Medicare inpatient operating costs. Based on the panel's recommendations, the Commission continued to analyze the relationship between Medicare costs and teaching activity, and recommended an appropriate level for the IME adjustment. This recommendation was made in ProPAC's *Report and Recommendations to the Secretary, U.S. Department of Health and Human Services, March 1989*:

The Commission recommends that the Secretary seek legislation to reduce the indirect medical education adjustment from its current level of 7.7 percent to 6.6 percent for fiscal year 1990. This reduction should be implemented in a budget neutral fashion with the savings returned to all hospitals through corresponding increases in the standardized amounts.

The 6.6 percent adjustment was based on analysis which found that for every increase of 0.1 in the intern and resident to bed ratio (IRB), Medicare cost per case for teaching hospitals was 4.4 percent

higher than costs for non-teaching hospitals. The study controlled for cost differences due to case mix, area wages, outliers, disproportionate share (DSH) status, and geographic location.¹ Further analysis revealed that reducing the IME adjustment from the current level of 7.7 percent to 4.4 percent would have a significant impact on PPS payments to teaching hospitals. In addition, overall hospital margins for major teaching hospitals were found to be considerably lower than those for non-teaching or smaller teaching hospitals. Concern about the impact of precipitously lowering payments to teaching hospitals led the Commission to recommend only one-third of the total reduction implied by the empirical estimate of 4.4 percent.

As part of the Omnibus Budget Reconciliation Act of 1989, the IME adjustment was maintained at 7.7 percent for fiscal year 1990. This year the Commission updated its analysis of the IME adjustment, and the overlap between the IME and disproportionate share adjustments, using more recent Medicare Cost Report data. In addition, a more in-depth analysis of the financial condition of teaching hospitals was undertaken.

Results of Analysis

The results of the analysis conducted by the Commission this year are described here.

Indirect Medical Education Estimate—Using PPS 4 Medicare Cost Report data, it was estimated that Medicare cost per case for teaching hospitals is 3.2 percent higher than for non-teaching hospitals for every 0.1 increase in the IRB. This estimate was obtained from a regression model that controlled for cost differences due to case mix, area wages, location (urban/rural), the DSH payment adjustment, and outlier payments. A total of 5,158 PPS hospitals, excluding those in New Jersey and Maryland, were included in the analysis.

The impact of reducing the IME adjustment from the current 7.7 percent to 3.2 percent is demonstrated in Table A-9. Under the 7.7 percent IME adjustment, a major teaching hospital with an IRB of 0.25 receives a 17.9 percent increase in its basic DRG payments. However, under a 3.2 percent adjustment, basic payments would be adjusted only 7.5 percent. By comparison, the percentage increase in basic DRG payments for a

Table A-9. Percent Increase in Payments for Two Teaching Hospitals

	Percent Increase for Teaching Under Current Adjustment (7.7%)	Percent Increase for Teaching Under ProPAC Estimate (3.2%)
Major teaching hospital (IRB = .25)*	17.9%	7.5%
Other teaching hospital (IRB = .05)*	3.8	1.6

* IRB = Intern and resident to bed ratio.

SOURCE: ProPAC estimates based on data from the Health Care Financing Administration.

teaching hospital with an IRB of 0.05 would decline from 3.8 percent to 1.6 percent under IME adjustments of 7.7 percent and 3.2 percent, respectively.

Teaching/Disproportionate Share Overlap—

The Commission has been concerned with the adequacy of PPS payments for hospitals facing the cost burden associated with both a graduate medical education program and a significant share of low-income patients. The following questions have been raised. Do teaching activity and DSH caseload have a compounding effect on the costs of these hospitals? If so, do the IME and DSH payment adjustments account for this compounding effect? These questions become particularly relevant when considering any change in the design of these payment adjustments.

To answer these questions, the Commission examined estimated per-case payments and costs under fiscal year 1990 payment rules for urban hospitals with 100 or more beds. This group comprises most teaching hospitals and represents the group receiving the largest portion of DSH payments. The analysis focused on whether hospitals receiving IME, DSH, or both adjustments are disadvantaged under the current PPS payment policy compared with non-teaching/non-DSH hospitals. The analysis showed that under current payment policy, most groups of teaching/DSH hospitals on average are treated somewhat better. Estimated per-case payments for these hospitals, relative to costs, are higher than for non-teaching/non-DSH hospitals. This is particularly true for major teaching hospitals with the largest shares of low-income patients.

If the IME adjustment were lowered to 3.2 percent, the current situation would change somewhat. In general, the payment advantage for teaching/DSH hospitals would be maintained, but

the size of the payment differential would be significantly reduced. Hospitals receiving only the IME adjustment would be placed at a payment disadvantage compared with non-teaching/non-DSH hospitals. Likewise, major teaching/low DSH hospitals would be placed at a payment disadvantage.

This analysis suggests that the compounding effects of teaching activity and low-income patient share on costs are more than accounted for under fiscal year 1990 payment rules. Teaching hospitals have higher costs for some of the same reasons that DSH hospitals have higher costs. Since this overlap is not taken into account in establishing the levels of the IME and DSH payment adjustments, hospitals receiving both of these adjustments have a payment advantage relative to all other hospitals.

This analysis further suggests that several groups of teaching hospitals would be at a payment disadvantage under the 3.2 percent IME adjustment. The payment disadvantage may be due, in part, to factors other than the presence of graduate medical education programs. For example, major teaching hospitals, especially large public institutions, are often located in inner city areas where the cost of doing business is high. This cost difference may not be fully captured by the area wage index and the higher base payment. The 3.2 percent IME adjustment may be appropriate to recognize the higher costs of teaching hospitals due to graduate medical education programs. It may not, however, be sufficient to recognize location or other factors making teaching hospitals more costly.

Comparison of PPS and Overall Hospital Margins—To assess the financial condition of teaching hospitals, the Commission examined PPS and overall hospital margins for teaching and non-teaching hospitals. The Commission found that teaching hospitals, in particular major teaching

Table A-10. PPS Margins for Hospitals in the First Five Years of PPS, by Hospital Group

Hospital Group	PPS Margins in Each PPS Year				
	PPS 1	PPS 2	PPS 3	PPS 4	PPS 5*
All hospitals	14.5%	14.4%	10.0%	5.6%	1.8%
Major teaching	19.0	21.0	17.7	14.2	11.3
Other teaching	16.4	16.2	11.7	7.1	3.1
Non-teaching	12.2	11.6	6.3	1.8	-2.0

* PPS 5 margins are projections based on data from a cohort of hospitals with Medicare Cost Report data in both PPS 4 and PPS 5.

SOURCE: Medicare Cost Report files for PPS 1 through PPS 5 from the Health Care Financing Administration.

hospitals, have fared well financially on their PPS business over the first four years of PPS, as shown in Table A-10. Projections of PPS margins for PPS 5, from an early sample of hospitals, suggest that the same pattern is continuing. However, this picture is reversed when comparing overall hospital margins, as shown in Table A-11. Overall margins have been considerably lower for major teaching hospitals than for non-teaching or other teaching hospitals from PPS 1 through PPS 4. Projections of overall margins for PPS 5 from an early sample of hospitals indicate the same pattern, with the overall margin falling below zero for major teaching hospitals.

The Commission examined possible explanations for the apparent divergence between PPS and overall margins for major teaching hospitals. Hospitals in the lowest quartile for PPS margins in PPS 4 were compared with those in the highest quartile, by teaching status. The following factors were compared between the low-margin and high-margin hospitals in each group: percent of inpatient days accounted for by Medicare, percent of inpatient days accounted for by Medicaid, and overall hospital margin. The results are shown in

Table A-12. While teaching hospitals as a group had high PPS margins and low overall margins, hospitals in the lowest quartile for PPS margins had lower overall margins. Likewise, hospitals in the highest quartile for PPS margins had higher overall margins. There was little difference in the percent of Medicare days for hospitals with lower or higher PPS margins. This was also true for the percent of Medicaid days.

Hospitals in the lowest and highest quartiles for overall hospital margins were also compared. The results are shown in Table A-13. The same relationship between PPS and total margins, seen in Table A-12, was found. Hospitals with the lowest overall margins generally have lower PPS margins, and those with the highest overall margins generally have higher PPS margins. Hospitals that are performing well financially under PPS also tend to perform well on their overall business. Another key finding was the relationship between Medicaid share and overall margins for major teaching hospitals. Hospitals with the lowest overall margins had a much higher Medicaid share than hospitals with the highest overall margins.

Table A-11. Overall Margins for PPS Hospitals in the First Five Years of PPS, by Hospital Group

Hospital Group	Overall Margins in Each PPS Year				
	PPS 1	PPS 2	PPS 3	PPS 4	PPS 5*
All hospitals	7.4%	6.5%	4.9%	3.8%	3.5%
Major teaching	4.6	5.1	3.2	2.1	-0.7
Other teaching	8.3	7.2	5.4	4.0	4.4
Non-teaching	7.5	6.5	4.9	4.0	4.1

* PPS 5 margins are projections based on data from a cohort of hospitals with Medicare Cost Report data in both PPS 4 and PPS 5.

SOURCE: Medicare Cost Report files for PPS 1 through PPS 5 from the Health Care Financing Administration.

Table A-12. Comparison of Hospitals in Lowest and Highest Quartiles for PPS Margins in PPS 4

	Medicare Inpatient Days (% of total days)	Medicaid Inpatient Days (% of total days)	Overall Hospital Margins
Major teaching			
Lowest quartile--PPS margin	35%	16%	-3.9%
Highest quartile--PPS margin	30	21	2.2
Other teaching			
Lowest quartile--PPS margin	41	9	-0.5
Highest quartile--PPS margin	40	11	4.1
Non-teaching			
Lowest quartile--PPS margin	47	8	-3.4
Highest quartile--PPS margin	46	10	5.6

SOURCE: Medicare Cost Report files for PPS 1 through PPS 5 from the Health Care Financing Administration.

The Commission will continue to examine the relationship between PPS and overall hospital margins. One area for future analysis is the impact of changes in payment policy for capital and direct medical education. Beginning in fiscal year 1987, less than 100 percent of Medicare allowable costs for inpatient capital is being reimbursed. In addition, under the Comprehensive Omnibus Budget Reconciliation Act, passed in fiscal year 1985, reimbursement for residency program costs was changed from a cost-based passthrough to a hospital-specific prospective payment per resident. Policy changes for capital would be reflected in hospital revenues starting in PPS 5, where changes in direct medical education payments would not be seen until PPS 7 (fiscal year 1990). To evaluate these policy changes, a broader set of Medicare margins will be calculated in the future: Medicare

inpatient margins. Medicare inpatient margins will include categories of inpatient costs that are not covered by prospective payment, the two largest being capital and direct medical education.

Impact of Alternative IME Adjustments—To assess the financial impact of lowering the IME adjustment, the percent change in per-case payments to hospitals under an adjustment of 3.2 percent was calculated under two alternative policy options: budget neutrality and program savings. Under budget neutrality, the difference in payments associated with reducing the IME adjustment to 3.2 percent is returned to all hospitals through corresponding increases in the standardized amounts. Under program savings, the difference in payments is not returned to hospitals. The results are displayed in Table A-14.

Table A-13. Comparison of Hospitals in Lowest and Highest Quartiles for Overall Hospital Margins in PPS 4

	Medicare Inpatient Days (% of total days)	Medicaid Inpatient Days (% of total days)	PPS Margin
Major teaching			
Lowest quartile--overall margins	30%	25%	1.4%
Highest quartile--overall margins	31	14	18.0
Other teaching			
Lowest quartile--overall margins	43	12	-3.1
Highest quartile--overall margins	44	8	7.6
Non-teaching			
Lowest quartile--overall margins	49	10	-13.9
Highest quartile--overall margins	47	8	4.7

SOURCE: Medicare Cost Report files for PPS 1 through PPS 5 from the Health Care Financing Administration.

Table A-14. Percent Change from Fiscal Year 1990 Per-Case Payments Under Four Alternative IME Adjustments

	3.2% with Program Savings	3.2% Budget Neutral	6.8% with Program Savings	6.8% Budget Neutral
All hospitals	-2.9%	0.0%	-0.6%	0.0%
MSA > 1 million	-4.1	-0.9	-0.8	-0.2
Other urban	-2.3	0.9	-0.4	0.2
Sole community	-0.1	a	a	a
Rural referral	-1.0	2.2	-0.2	0.4
Sole and referral	-0.1	a	a	a
Other rural	a	0.1	a	a
Major teaching	-11.1	-8.2	-2.1	-1.5
Other teaching	-3.2	-0.1	-0.6	a
Non-teaching	0.0	2.6	0.0	0.5
Teaching/DSH ^b				
No teaching/No DSH	0.0	2.5	0.0	0.5
No teaching/DSH	0.0	2.9	0.0	0.6
Teaching/No DSH	-4.3	-1.2	-0.8	-0.2
Teaching/DSH	-6.5	-3.5	-1.3	-0.7

^a Less than 0.01 percent.

^b DSH=Disproportionate share hospitals.

SOURCE: ProPAC estimates based on data from the Health Care Financing Administration.

Reducing the IME adjustment to 3.2 percent would lower payments to major teaching hospitals by 8.2 percent under the provision of budget neutrality. The reduction would be 11.1 percent if the difference in payments were not redistributed to all hospitals. PPS payments to other teaching hospitals would decrease only 0.1 percent with budget neutrality, but decline 3.2 percent under program savings. Finally, non-teaching hospitals' payments would increase 2.6 percent with budget neutrality because of resulting increases in the standardized amounts.

Concerned about the impact of lowering the IME adjustment to 3.2 percent—particularly for major teaching hospitals, which receive 56 percent of all IME payments—the Commission is recommending a reduction in the IME adjustment to 6.8 percent. This reduction reflects one-fifth of the difference between the current IME adjustment and the Commission's empirical estimate. The effect of this reduction is also shown in Table A-14. Payments to major teaching hospitals would decline 2.1 percent and 1.5 percent with program savings and budget neutrality, respectively. Other teaching hospitals would experience a 0.6 percent decrease in payments without a redistribution in

payments, and little change with budget neutrality. Non-teaching hospitals would receive a 0.5 percent increase in payments under budget neutrality.

Conclusions

These analyses indicate that the Medicare program is more than adequately compensating teaching hospitals for the indirect effects of graduate medical education on Medicare cost per case under the 7.7 percent IME adjustment. PPS operating margins through the fifth year of PPS are significantly higher for teaching hospitals than for non-teaching hospitals. By contrast, overall hospital margins for major teaching hospitals are significantly lower than for other teaching and non-teaching hospitals. Reducing the IME adjustment to 3.2 percent for fiscal year 1991 may seriously jeopardize the financial position of some major teaching hospitals.

The Commission believes that the decision to modify the IME adjustment must be based on both empirical analysis and a broad interpretation of Medicare's responsibility to program beneficiaries. A gradual reduction in the level of the IME adjustment over five years is a prudent course of action

for achieving Medicare payment policy goals. The Commission therefore recommends lowering the adjustment 0.9 percentage points for fiscal year 1991, to 6.8 percent. The reduction in payments through the lowered IME adjustment should be accompanied by a redistribution of these dollars through corresponding increases in the basic payment to all hospitals.

Before recommending any subsequent reductions in the IME adjustment, the Commission believes it

is important to continue to assess the financial condition of teaching hospitals. The discrepancy between PPS and overall margins for major teaching hospitals indicates that further reductions in Medicare payments may threaten the financial integrity of these flagship institutions. ProPAC therefore strongly urges the Secretary to study the impact of PPS and non-PPS factors (for example, uncompensated care) on the financial status of teaching and non-teaching hospitals and to develop a broad approach to address these issues.

URBAN AND RURAL STANDARDIZED AMOUNTS

When Congress created PPS, separate urban and rural base payment amounts, or standardized amounts, were established to reflect the historically lower per-case costs of rural hospitals. The standardized payment amounts are based on Medicare allowable inpatient operating costs per case reported by urban and rural hospitals in the PPS base year (1981), updated to the current year. The method used to create the separate urban and rural standardized amounts is complex. It involves four basic steps: (1) removing costs that are excluded from PPS, (2) updating for inflation, (3) standardizing for factors that are included in PPS, and (4) aggregating and calculating averages.

For each hospital, costs not included in PPS (such as capital) were excluded from the inpatient cost per discharge, as calculated from the hospital's Medicare Cost Report. A hospital's base year costs were then increased by the estimated national average rate of increase in cost per case to 1983. Next, the cost data were adjusted, or standardized, to remove the effects of differences in teaching activity, DRG case mix, and area wages. Finally, the standardized costs were averaged separately for all hospitals located in urban and rural areas. The standardized amounts were then reduced to offset outlier payments anticipated during the forthcoming year.

The differential between the urban and rural standardized amounts represented factors such as service intensity and practice patterns, unmeasured

severity of illness, and scope and scale of services. The effects of these factors on hospitals costs are not well understood, are difficult to separate, and are largely unmeasurable. Because these factors cannot be measured independently, they are not separately and explicitly adjusted for in PPS.

Originally, the rural standardized amount was 20.2 percent lower than the urban amount. This differential has narrowed to 7.8 percent as a result of a series of congressional actions (see Table A-15). These actions included using discharge-weighting to calculate the standardized amounts (beginning in fiscal year 1988), instituting separate urban and rural outlier offsets (beginning in fiscal year 1987), and establishing separate urban and rural update factors (beginning in fiscal year 1988).² The differential between the standardized amounts narrowed because of technical changes in PPS and separate updates, rather than changes in the relationship between urban and rural costs per case.

Costs and Payments

Per-case Medicare-allowable operating costs of rural hospitals are about 40 percent lower than the costs of urban hospitals.³ This was true in the base year (1981) and has continued through at least the fifth year of PPS, the most recent year for which data are available. Most of the difference between urban and rural hospitals' cost per case is accounted for by factors that are explicitly recognized under PPS as part of the payment formula. These factors include differences in case mix, area wages, teaching activity, care for a disproportionate share of low-income patients, and outlier cases (cases

Table A-15. Standardized Amounts, Fiscal Year 1984 to Fiscal Year 1990

	PPS 1 FY 1984	PPS 2 FY 1985	PPS 3 FY 1986 ^a	PPS 4 FY 1987		PPS 5 FY 1988 ^a	PPS 6 FY 1989	PPS 7 FY 1990 ^b
Urban	\$2,837.91	\$2,985.05	\$2,987.31	\$2,970.31	Large urban	\$3,120.10	\$3,215.17	\$3,396.56
Rural	2,264.00	2,381.39	2,370.22	2,449.91	Other urban	3,104.73	3,183.85	3,342.79
					Rural	2,712.16	2,834.71	3,107.20
Differential	20.2%	20.2%	20.7%	17.5%		12.9% ^c	11.4% ^c	7.8% ^c

^a The standardized amounts displayed are the rates in effect at the end of the fiscal year.

^b The standardized amounts displayed are the rates in effect as of January 1, 1990.

^c Represents the differential between the average urban standardized amount and the rural standardized amount.

SOURCES: FY 1984 - 48 *Federal Register* 39763, September 1, 1983; FY 1985 - 49 *Federal Register* 34777, August 31, 1984; FY 1986 - 50 *Federal Register* 35715, September 3, 1985; FY 1987 - 51 *Federal Register* 42232, November 24, 1986; FY 1988 - 53 *Federal Register* 11134, April 5, 1988; FY 1989 - 53 *Federal Register* 38543, September 30, 1988; FY 1990 - 54 *Federal Register* 53755, December 29, 1989.

with unusually long lengths of stay or high costs). The remaining cost differences are generally believed to be associated with practice patterns, service intensity, unmeasured severity of illness, service mix, hospital size, and geographic location.⁴

Before PPS, hospitals were paid their reasonable costs (usually their Medicare-allowable operating costs). As a result, payments to rural hospitals were, on average, 40 percent lower than payments to urban hospitals. Since PPS, estimates of per-case payments indicated that payments to rural hospitals continued to be about 40 percent lower than to urban hospitals. However, actual per-case payments to rural hospitals have been about 45 percent lower than payments to urban hospitals (see Table A-16). The difference is largely the result of differential rates of case-mix index change. Between 1981 and 1984, the average case-mix index increased 8.3 percent for urban hospitals, while there was only a 5.5 percent increase for rural hospitals. Since then, the case-mix index has continued to increase faster for urban hospitals than for rural hospitals.

For all five years of PPS, Medicare operating cost per case for rural hospitals have been about 40 percent lower than for urban hospitals (see Table A-16). However, PPS payment per case to rural hospitals have been about 43 percent higher than payments to urban hospitals. The per-case cost of rural hospitals are 32 percent lower in PPS 5 than the costs of other urban hospitals, and per-case PPS payments are 37 percent lower. By contrast, the cost and payment differentials be-

tween large urban and other urban hospitals have remained about equal over the same five-year period.

Conclusions

Because of the disparity between other urban and rural hospitals' cost per case and payment per case, the Commission recommends eliminating the differential between the other urban and rural standardized amounts by fiscal year 1993. This will increase payments to rural hospitals. Rural hospitals, however, will continue to receive lower payment per case than urban hospitals. A substantial portion of the difference between per-case PPS payments to urban and rural hospitals would remain. This is due to adjustments for costs that are explicitly included in the payment system: case mix, area wages, teaching activity, outliers, and care for a disproportionate share of low-income patients. The two factors that account for the greatest share of the difference between urban and rural hospitals per-case PPS payments are case-mix index and the area wage index. Both of these factors tend to be substantially higher for urban hospitals.

Eliminating the differential between the other urban and the rural standardized amounts will mean that differences between hospitals' costs now included in the payment system implicitly will no longer be recognized. Consequently, some hospitals may receive higher payments relative to other hospitals and to their costs. For this reason, the Commission will continue to examine whether it may be appropriate to include other payment adjustments to refine PPS further.

Table A-16. Percentage Differences between Hospital Groups for Per-Case Medicare Operating Costs and Per-Case PPS Payments

Differences between Hospital Groups	PPS 1	PPS 2	PPS 3	PPS 4	PPS 5*
All urban and rural hospitals					
Costs	40%	41%	40%	41%	40%
Payments	44	45	45	45	43
Other urban and rural hospitals					
Costs	33	34	33	34	32
Payments	38	39	39	39	37
Large urban and other urban hospitals					
Costs	19	19	19	18	19
Payments	20	19	20	18	18

Note: Figures represent the percentage difference between the first hospital group listed and the second hospital group.

* Preliminary figures. All cost reports from PPS 5 are not yet available.

SOURCE: ProPAC estimates based on Medicare Cost Report data from the Health Care Financing Administration.

Notes to Appendix A

1. The details of this analysis are provided in *The Indirect Medical Education Adjustment*, ProPAC Intramural Technical Report Series, I-89-04, July 1989.
2. Originally, average standardized amounts were calculated by summing the average cost per case for each hospital and dividing by the total number of hospitals. This process, known as "hospital-weighting," gives hospitals with few Medicare discharges the same weight in calculating the standardized amounts as a hospital with many discharges. In 1986, ProPAC suggested using discharge-weighting to give hospitals with many Medicare discharges more weight in calculating the standardized amounts than hospitals with few Medicare discharges.
3. Medicare-allowable operating costs include a hospital's operating costs for routine, ancillary, and intensive care-type services. Costs that are not included are capital, direct medical education, organ acquisition, and services of non-physician anesthetists.
4. *Urban and Rural Cost Differences: Literature Synthesis and Review*, ProPAC Technical Report Series, I-89-01, February 1989, prepared by SysMetrics/McGraw-Hill, Inc., under ProPAC contract T-47540316.

Appendix B. Technical Report Series

EXTRAMURAL TECHNICAL REPORT SERIES

E-87-01: Improving the Definition of Hospital Labor Market Areas and Wage Indexes (Abt Associates, Inc.)

Methods for improving the definition of hospital labor market areas were investigated. This report identifies urban and rural labor market areas with the greatest amount of wage variation. It also examines the sources of wage variation within current labor markets and possible improvements in the area wage adjustment. (2/87)

E-87-02: A Review of Adjustment Methodologies for Hospital Outcome Studies (Project HOPE)

This report includes a literature review, catalogues existing methods for adjusting outcome statistics, studies the adequacy of existing databases for these purposes, and assesses strengths and weaknesses of various adjustment methods. (1/88)

E-87-03: Developing a Measure of Complexity of Illness Within DRGs (SysteMetrics/McGraw-Hill, Inc.)

The goal of this research is to refine the Commission's method to monitor continuing changes in DRG case-mix and case complexity (changes within DRGs). This study refines the Commission's methodology for estimating the annual component of real case-mix change within DRGs. The methodology was used to develop annual estimates of within-DRG case-mix change for Medicare patients from 1984 to 1986. It will also be used by the Commission to estimate this component of real case-mix change in future years as additional Medicare data become available. Also, estimates from this study will be used to analyze the indirect teaching adjustment. (7/88)

E-87-04: The Changing Structure of the Health Care Industry and the Influence of Medicare Prospective Payments (Bernhard Friedman, Ph.D.)

This report discusses horizontal and vertical consolidation in the hospital industry during the pre- and post-PPS periods. The author also examines the relationship between prospective pricing incentives and changes in the structure of the industry, as observed through adoption of these integration strategies. The author offers implications of industry structure changes for consumers, community goals, and Medicare program expenses. Empirical evidence of the changing structure of the industry is also included. (3/88)

E-87-05: Assessing Quality Assurance Software Packages (Health Economics Research, Inc.)

This report examines the spectrum of quality assurance (QA) software packages on the market and the impact of these packages on hospital QA functions. Information was obtained through two separate surveys — one of 20 software vendors concerning the characteristics of their product, the other of 62 hospitals to determine the adoption rate for QA software. The authors first discuss the results of the vendor survey and present a comparison of selected software package characteristics. Then, the hospital survey component is discussed, with emphasis on those hospitals that have purchased a QA package. Selection process, transition period, vendor training and technical support, and impact of the software on operations are examined. The report concludes with a comparison of the physician profiling capabilities of five QA software packages as a means of illustrating different products. (10/87)

E-87-06: Assessing the Adequacy of the Medicare Cost Report Data (SysteMetrics/McGraw-Hill, Inc.)

This report provides information on perceived strengths and weaknesses of the Medicare Cost Report. Hospital financial officers, fiscal intermediaries, and industry representatives were surveyed. In general, the results of this study indicate that most hospitals believe that the Medicare Cost Report is acceptable as a reimbursement tool. Most hospitals felt, however, that the Medicare Cost Report does not accurately measure the cost of

care for Medicare beneficiaries because costs such as bad debt, charity care, patient telephones and so forth are not recognized. PPS has resulted in changes in reporting practices. Particular attention was being given to pass through items like capital and direct medical education. (4/88)

E-87-07: The Impact of Medicare Prospective Payment on the Use of Expensive Devices, 1984-86 (Project HOPE)

This report examines trends over this three-year period in the use of medical devices such as pacemakers, joint prostheses, shunts, and grafts. It focuses on device use within 30 DRGs that such cases are frequently assigned to and also looks for evidence of payment differentials that could create disincentives to device use. (3/88)

E-87-08: Trends in the Concentration of Six Surgical Procedures Under PPS and Their Implications for Patient Mortality and Medicare Cost (Project HOPE)

This report examines trends in hospitals volumes of six specialized surgical procedures and the impact of those trends on mortality and costs. The six procedures are: coronary artery bypass grafting, total hip replacement, abdominal aneurysm repair, intestinal resection, transurethral prostatectomy, and carotid endarterectomy. (6/88)

E-87-09: Estimates of Hospital Industry Total Factor Productivity for the Period 1980-1986 (PPS or Excluded Facilities) (Health Economics Research, Inc.)

Measures of total factor productivity in both PPS and excluded hospitals are developed using AHA data. Labor and capital inputs and changes in the hospital product are part of the analysis. (2/88)

E-87-10: Estimating the Impact of Scientific and Technological Advances on Increases in Medicare Costs Per Case for FY 1989: Implications for the Discretionary Adjustment Factor for FY 1989

In fiscal year 1986, the contractor refines ProPAC's technology-specific approach to estimating the impact of newly introduced scientific and technological advances on Medicare inpatient cost per case in both PPS and excluded facilities. This task order refined the cost estimate techniques and developed

more refined estimates of diffusion to be used in estimating cost impacts. (5/88)

E-87-11: Small Isolated Rural Hospitals: Alternative Criteria for Identification in Comparison with Current Sole Community Hospitals (SysteMetrics/McGraw-Hill, Inc.)

The purpose of this study is to determine how many facilities are eligible to be designated Sole Community Hospitals (SCHs). The contractor also examines how the distribution of SCHs would change if the SCH criteria were altered. This study also provides information used to analyze the financial vulnerability of small isolated rural hospitals. (6/88)

E-87-12: Assigning Hospitals to Urbanized Areas Within Metropolitan Statistical Areas (Abt Associates, Inc.)

This report provides detailed step-by-step instructions for assigning hospitals within MSAs to urbanized areas as defined by the Census Bureau. It builds on previously completed work conducted by Abt Associates, "Improving the Definition of Hospital Labor Market Areas and Wage Indexes." This report also responds to technical implementation issues raised by the Secretary in response to a ProPAC recommendation. (6/88)

E-88-01: Subacute Care in Hospitals, Synthesis of Findings from the 1987 Survey of Hospitals Case Studies in Five States (Lewin and Associates, Inc.)

This document is the final report of an 18-month study of subacute care in hospitals, often referred to as transitional care. Results of a representative national survey of hospitals are presented, along with findings from case studies in five states (New York, California, Louisiana, Washington, and North Carolina). Data and information are also presented on other types of transitional care, such as home health and skilled nursing care. (9/88)

E-88-02: Analysis of Hospital Sensitivity to DRG Price Variation in the Medicare Prospective Payment System (SysteMetrics/McGraw-Hill, Inc.)

This study provides information on whether hospital behavior in rendering care and assigning resources is sensitive to differences between hospital

costs and PPS prices. The contractor conducted interviews with health care consultants and hospital administrators to: identify the extent and objectives of hospital strategies to concentrate in or discontinue selected services, assess whether these strategies are in direct response to variations in the DRG prices or other factors influencing hospital management, and examine the use of product line management and service costing in hospitals' response to DRG price variations. (8/88)

E-89-01: Urban and Rural Cost Differences: Literature Synthesis and Review (SysteMetrics/McGraw-Hill, Inc.)

The reasons for differences in urban and rural hospital's costs per case are synthesized from current research in this task order. Specifically, the basis for the lower costs of rural hospitals compared with urban hospitals is explored and further research suggested. (3/89)

E-89-02: Treatment of Certain Hospital Labor Expenses in the PPS Market Basket (SysteMetrics/McGraw-Hill, Inc.)

This task order examines certain hospital labor expenses not directly measured by the PPS market basket (contract labor, employee bonuses, recruitment costs, employee benefits, overtime and part-time employment, and changes in employee skill mix). The project examines how these costs are currently measured in the market basket and changes in these expenses between 1985 and 1988. Estimates of the effect these labor expenses might have had on market basket increases if these labor expenses were directly measured in the market basket wage component. The calculation of the Average Hourly Earnings for Non-Supervisory Hospital Workers and the Employment Cost Index for Hospitals calculation is also described in the study. (3/89)

E-89-03: Refinement of Measure of Complexity of Illness Within DRGs (SysteMetric/McGraw-Hill, Inc.)*

This task order is a follow-up on an earlier project on developing a measure of within-DRG case-complexity change. Case-complexity change is measured by applying Patient Management Categories (PMCs) and Disease Staging Categories to Medicare patient data that had already been grouped by DRG. The results from the initial task

order are consistent with previous work on case-complexity change. The contractor applies the methodology to 1987 data, estimates the impact of upcoding on the measure, and analyzes the strengths and weaknesses of the measure. (3/89)

E-89-04: Demographics and Health of the Elderly: Past Trends and Projections (Institute for Health and Aging)

This report documents and projects the growth in the elderly population. It also covers the socioeconomic characteristics of this population segment. The largest portion of the report covers health related topics and the impact of a growing elderly population on national health care expenditures. (4/89)

E-89-06: State Systems for Hospital Payment (Intergovernmental Health Policy Project)

State Medicaid inpatient and outpatient reimbursement systems and the use of case-mix systems are summarized in this report. It also contains information on state uncompensated care initiatives and state responses to the Medicaid provisions of the Medicare Catastrophic Coverage Act. (4/89)

E-90-01: The Relationship Between Declining Use of Rural Hospitals and Access to Inpatient Services for Medicare Beneficiaries in Rural Areas (Codman Research Group, Inc.)

This study examines hospital utilization patterns for Medicare beneficiaries living in defined rural and urban hospital market areas of five states—Alabama, California, Illinois, Montana, and Texas—from 1984 to 1986. The study examines Medicare beneficiary care from the patient's perspective, or the market area where the beneficiary lives. Cases were divided into eight DRG groups to examine whether access is impaired for some services and not others. The study also examines how these changes in utilization affect admissions and market share of rural and urban hospitals. (1/90)

Pending

How Services and Costs Vary by Day of Stay for Medicare Hospital Patients (The RAND Corporation)

This study describes how the cost of services provided during Medicare hospital stays varies

throughout the stay. It also examines how patterns of daily cost vary with clinical characteristics, with hospital characteristics, and with the types of services provided. The study is based on data on the daily services billed to Medicare patients between May 1987 and April 1988 from a sample of 105 hospitals, and is the first time that data of this type have been used in this way. (2/90)

Alternative Hospital Market Area Definitions (SysMetrics/McGraw-Hill, Inc.)

This report examines alternative methods for defining hospital market areas through an extensive search of the literature and contact with experts in the field. The study reviews the role market areas play in PPS. It then reviews numerous alternatives that have been used for defining market areas, also exploring options that have not been used for hospitals. Finally the study provides an evaluation of the alternative methodologies and their potential applicability to PPS for defining hospital labor and product markets. (3/90)

Analysis of Hospital Margins Derived from American Hospital Association and Medicare Cost Report Data (American Hospital Association)*

The goal of this study is to assess total margins calculated from the income statement section of the Medicare Cost Report and from the AHA's Annual Survey for comparison. This final report first describes the methodology and results of matching total margins data from the two sources for the same hospitals covering the same period of time. Then it reports the results of a telephone survey of hospitals for which a discrepancy between the AHA and MCR total margin values was documented. The survey is designed to determine the reasons for such discrepancies. (4/90)

Within-DRG Case-Complexity Change: Update and Distributional Differences (SysMetrics/McGraw Hill, Inc.)

Case-mix index change continues to be a major contributing factor to increases in hospital payments. However, it is still a poorly understood phenomenon. The report will provide updates of the within DRG case-complexity change measures developed in previous studies. The report will also supply descriptive statistics on changes in numbers of comorbidities and secondary di-

agnoses coded, types of comorbidities and secondary diagnoses coded, and differences across hospital types. (4/90)

Hospital Closures 1984 Through 1988 (Jack Hadley, Ph.D., based on ProPAC data analysis)

The objective of the analysis in this report is to provide information concerning the characteristics of hospitals that have closed and the factors leading to closure, including characteristics of the counties where the closed hospitals are located. AHA Annual Surveys, Medicare Cost Reports, and Area Resource File data are being used in this analysis. (4/90)

Hospital Cost Variations Under PPS (Georgetown University)

This study explores the impact of PPS and other factors in accounting for variations in total costs among hospitals during the 1980s. The goal is to understand the extent to which PPS has affected hospital costs, and the mechanisms which have produced those effects. The impact of PPS is isolated by analyzing time-series cost data for a sample of hospitals, while controlling for the effects of other factors, such as input prices, mix of outputs, volume of outputs, local competition, and health insurance coverage. The study also focuses on the roles of staffing, service mix, patient volume, and financial pressure to identify the mechanisms that have operated to produce PPS effects. These analyses are conducted separately for all sample hospitals and for important subgroups of the hospital industry, including teaching, non-teaching, urban, and rural hospitals. (5/90)

Methodology for Measuring Case-Mix Change (RAND Corporation)*

ProPAC is assisting HCFA in a medical record reabstraction study. The purpose of this study is to develop a method to distinguish case-mix increases caused by changes in coding practices from changes in treatment patterns and patient mix. It will also provide information for developing and refining alternative ongoing data collection methods to monitor case-mix change over time. The Commission is providing \$100,000 toward the funding of this project in addition to support in designing, implementing, and monitoring the study. (6/90)

* Contains technical background information supporting recommendations made in this report.

INTRAMURAL TECHNICAL REPORT SERIES

I-88-01: Proceedings from ProPAC's Technical Advisory Conference on Alternative Case-Mix Classification Systems

This paper first summarizes the presentations made by the developers of six case-mix classification systems. It also outlines the case-mix studies funded by HCFA. Then comparisons of case-mix classification systems are presented. The final section of this paper consists of ProPAC's conclusions on case-mix measurement. (1/88)

I-88-02: Recalibration Analysis Comparing Charge-Based and Cost-Based DRG Weights

ProPAC analyzed the two methods of recalibrating the DRG relative weights, using charges only (charge-based) and using charges that are adjusted by costs (cost-based). This report provides a detailed description of the data, methods, and results of ProPAC's comparisons. (3/88)

I-89-01: Staffing Shortages and Hospital Responses

ProPAC obtained information on the shortage issue and hospital responses to personnel shortages through a literature review and informal telephone interviews with hospital personnel. The literature review provided information about staffing shortages for several different occupations. The telephone interviews provided supplementary information using anecdotal reports of staffing situations at individual hospitals. (3/89)

I-89-03: Review of Medicare Cost Report Data for Policy Analysis

This report summarizes the work undertaken by the Commission on the use of the Medicare Cost Report (MCR) data for decision making. The major activity the Commission initiated to identify improvements in the use of existing cost data for policy analysis was to convene a panel to discuss the strengths and weaknesses of the MCR. The report also summarizes ProPAC's monitoring of HCFA's three-year demonstration assessing the costs and benefits of adding financial and utilization information regarding other payers to the MCR. (3/89)

I-89-04: Payment Adjustments—Indirect Teaching and Disproportionate Share Hospitals

ProPAC analyzed the effect of teaching effort on Medicare costs. The objectives of the analysis were: to estimate the relationship between teaching effort and Medicare cost per case using the most recent Medicare Cost Report data available; to examine the overlap between the indirect medical education and the disproportionate share payment adjustment; and to evaluate the financial impact of revising the indirect medical education adjustment. The report describes the methods and results of the analysis. (7/89)

Pending

Analyses of DRG Classification and Assignment*

This report updates material in TRS document I-89-02 and presents results of ProPAC's analyses of diagnosis-related group (DRG) classification and assignment. Periodic adjustments to the DRGs are necessary to reflect new technologies, scientific advances, and changes in medical practice. This report includes information on Commission recommendations for classification or assignment improvements. These recommendations were related to new and changing technologies and practice patterns and to equity of payment among hospital groups. Analyses of other DRG classification and assignment issues are also included. (4/90)

Payment Adjustments—Indirect Teaching and Disproportionate Share Hospitals

ProPAC analyzed the effect of teaching effort on Medicare costs. The objectives of the analysis were: to estimate the relationship between teaching effort and Medicare cost per case using the more recent Medicare Cost Report data available; to examine the overlap between the indirect medical education and the disproportionate share payment adjustment; and to evaluate the financial impact of revising the indirect medical education adjustment. The report describes the methods and results of the analysis and builds on analysis reported in TRS I-89-04. (4/90)

Hospital Access to Debt Financing and Trends

The hospital tax-exempt financing process and Medicare's role in that process will be summarized

in an effort to monitor the impact of new capital payment policy. Also, the types of programs available to less credit-worthy hospitals will be assessed. (4/90)

Adjusting the Area Wage Index for Occupational Mix*

Currently, the area wage index does not account for geographic difference in occupational mix. This report will present the results of ProPAC's study on the effect of adjusting the area wage index for occupational mix. The relationship of occupation mix to case mix will also be investigated. The report will describe the methods and results of the analysis. The results include MSA, regional, and urban/rural estimates of the impact. In addition, the effect on payments of an adjustment for occupational mix of the wage index will be calculated. (4/90)

* Contains technical background information supporting recommendations made in this report.

CONGRESSIONALLY MANDATED REPORTS

C-88-01: An Evaluation of the Department of HHS Report to Congress on Studies of Urban-Rural and Related Geographical Adjustments in the Medicare PPS

The Omnibus Budget Reconciliation Act of 1987 (OBRA 1987) required ProPAC to report to the Congress on its evaluation of the Secretary's study on the feasibility and impact of eliminating or phasing out separate urban and rural rates. The report is organized into four major sections: background and definition of issues, summary of the Secretary's study methods and findings, Commission evaluation of the Secretary's study, and future direction of Commission activities. (6/88)

C-88-02: Linking Medicare Capital Payments to Hospital Occupancy Rates

The Omnibus Budget Reconciliation Act of 1987 required ProPAC to report to the Congress on the suitability and feasibility of linking Medicare capital payments to hospital occupancy rates. This was addressed by reviewing current Medicare capital payment principles, examining historical trends in

capital costs and occupancy rates, and analyzing the relationship between capital costs and occupancy. (4/88)

C-88-03: Outlier Payment Alternatives for Burn Cases

The Omnibus Budget Reconciliation Act of 1987 required ProPAC to study alternative payment methods for burn outlier cases under the prospective payment system. The Commission examined costs and PPS payments for all burn cases as well as outlier cases only. Differences between payments and costs for burn hospitals and units and other PPS hospitals were examined. (7/88)

C-88-04: The Views of the Prospective Payment Assessment Commission on Developing Medicare Payment for Hospital Outpatient Surgery

Omnibus Budget Reconciliation Act of 1987 required the Secretary of HHS to solicit the views of ProPAC in developing outpatient payment systems and to include these views in a series of reports to Congress. This report focuses on the facility component of payment for surgeries performed in hospital outpatient settings. (8/88)

C-88-05: Separate PPS Payment Rates for Hospitals in Large Urban Areas and Other Urban Areas

The Omnibus Budget Reconciliation Act of 1987 required ProPAC to "evaluate the desirability of maintaining separate DRG prospective payment rates for hospitals located in large urban areas...and in other urban areas." The report first describes how PPS currently treats hospitals in different sized urban areas. Descriptive information comparing hospitals in different sized urban areas is then presented. This is followed by a discussion of the PPS policy implication of variation in costs and margins by MSA size. (12/88)

C-89-01: Medicare Payment for Hospital Outpatient Surgery: The Views of the Prospective Payment Assessment Commission

The Omnibus Budget Reconciliation Act of 1987 requires the Secretary to solicit the views of the

Commission on prospective payment for hospital outpatient surgery. This report contains ProPAC's recommendations and related rationale on such payment policy beginning in fiscal year 1990. It also includes background information used by the Commission in its deliberations, including the findings of ProPAC's data analysis of hospital outpatient surgery costs. (4/89)

C-89-02: Payment Rates for Hospitals Redesignated from Rural to Urban: Analysis and Recommendations

The Technical and Miscellaneous Revenue Act of 1988 required ProPAC to study and report to Congress on (1) appropriate payment under PPS for hospitals located in certain rural counties that were redesignated as urban under section 4005 of OBRA 1987, and (2) the appropriate treatment of the wage and wage-related costs of these hospitals in computing area hospital wage indexes for the affected urban and rural areas. This study focuses on the financial impact of various policy options on both the redesignated hospitals and on other hospitals located in the affected urban and rural areas. (8/89)

C-89-03: Adjustment to the Non-Labor-Related Portion of the Standardized Amounts

The Omnibus Budget Reconciliation Act of 1987 required ProPAC to analyze the feasibility and appropriateness of a geographic adjustment to the nonlabor-related portion of the PPS standardized amounts. Price data for nonlabor components of the hospital market basket are compiled from available data sources in order to determine whether nonlabor prices vary by geographic area. The report contains this information and the Commission's determination whether such an adjustment is feasible and appropriate. (8/89)

Pending

Payments to Rural Sole Community and Small Rural Hospitals

The Omnibus Budget Reconciliation Act of 1989 requires the Commission to submit a report to Congress on the feasibility and desirability of (a) using a cost-based reimbursement system for paying small rural hospitals and sole community hospitals, (b) using alternative definitions of market

share to determine eligibility for sole community hospital classification, and (c) accounting for decreases in admissions in determining payments to small rural hospitals or their costs. (5/90)

Medicare Dependent Hospitals

The Omnibus Budget Reconciliation Act of 1989 requires the Commission to study the appropriateness of making an adjustment to Medicare payment to hospitals that treat a high proportion of Medicare discharges. Information on this topic will be included in ProPAC's annual report, *Medicare Prospective Payment and the American Health Care System*. (6/90)

Financial Status of High Case Mix Hospitals

The Omnibus Budget Reconciliation Act of 1989 requires the Commission to study the financial status of high case mix hospitals with special attention devoted to capital investment. Information on this topic will be included in ProPAC's annual report, *Medicare Prospective Payment and the American Health Care System*. (6/90)

Issues Related to Non-Physician Health Care Providers

The Senate Committee on Appropriations in report 101-127 asked ProPAC to examine the reimbursement of services furnished by non-physician health care providers and the extent to which these providers might furnish alternatives to hospital care. Information on this topic will be included in ProPAC's annual report, *Medicare Prospective Payment and the American Health Care System*. (6/90)

Payments for Services in Hospital Outpatient Departments

The Omnibus Budget Reconciliation Act of 1989 requires the Commission to submit a report to Congress on (a) the sources of growth in spending for hospital outpatient services, (b) the differences between the costs of delivering services in a hospital outpatient department as opposed to other appropriate settings, and (c) the effects of allocation of capital costs on outpatient costs and the extent to which hospital outpatient costs were affected by the implementation of the prospective payment system and by increased review of such services by peer review organizations. (7/90)

Medicare Payment for Hospital Outpatient Services: The Views of the Prospective Payment Assessment Commission

The Omnibus Budget Reconciliation Act of 1986 requires the Secretary to develop a model system for payment of hospital outpatient services other than ambulatory surgery by January 1, 1991. OBRA 1987 directs the Secretary to solicit the views of ProPAC in developing these policies. This report will contain ProPAC's recommendations and discussion on classification and payment of hospital outpatient services. The report will include a further examination of payment for hospital outpatient surgery within the context of a more comprehensive outpatient payment approach. (12/90)

Analysis of the Secretary's Legislative Proposal Eliminating Separate Average Standardized Amounts

The Omnibus Budget Reconciliation Act of 1989 requires the Secretary of Health and Human Services to prepare a legislative proposal eliminating separate average standardized amounts for hospitals located in large urban, other urban, and rural

areas. It also directed ProPAC to submit a report to Congress analyzing this proposal and its impact on hospitals. (2/91)

Alternative Methods for Reimbursing Hospitals for Services in Outpatient Departments Under the Medicare Program

The Omnibus Budget Reconciliation Act of 1989 requires the Commission to submit a report to Congress on alternative methods for reimbursing hospitals for services in outpatient departments including prospective payment methods, fee schedules, and other such methods as the Commission may consider appropriate. The Commission is to include any recommendations it deems appropriate. (3/91)

Pass Through Payments for Hemophilia Inpatients

The Omnibus Budget Reconciliation Act of 1989 requires the Commission to submit a report to Congress that contains recommendations on paying for the cost of administering blood clotting factors to individuals with hemophilia. (5/91)

Appendix C. ProPAC Operations

BIOGRAPHICAL SKETCHES OF COMMISSIONERS

Stuart H. Altman, Chairman

Stuart H. Altman, dean of the Florence Heller Graduate School for Social Policy, Brandeis University, and Sol C. Chaikin Professor of National Health Policy, is an economist whose research interests are primarily in the area of Federal health policy. He has been at Brandeis since 1977. Between 1971 and 1976, Dean Altman was deputy assistant secretary for planning and evaluation/health at the Department of Health, Education and Welfare (now the Department of Health and Human Services). In that position, he was one of the primary contributors to the development and advancement of the National Health Insurance proposal. From 1973 to 1974, he also served as the deputy director for health of the President's Cost of Living Council, where he was responsible for developing the council's program on health care cost containment. Formerly, Dean Altman taught at Brown University and at the University of California (Berkeley). He is a member of the Institute of Medicine of the National Academy of Sciences and former member of its governing council; on the board of Beth Israel Hospital (Boston); chairman of the board of the Health Policy Center at Brandeis; and president of the National Foundation for Health Services Research. He is a past president of the National Association for Health Services Research and former board member of The Robert Wood Johnson Clinical Scholars Program. Dean Altman also served on the President's Commission for a National Agenda for the Eighties. A member of several editorial boards, he has published extensively on various aspects of health care and public policy. Dean Altman received both an M.S. and a Ph.D. in economics from the University of California (Los Angeles).

Richard A. Berman

Richard A. Berman is special consultant to McKinsey & Company, Inc., in New York, a position he has held since 1987. In addition, he serves

several organizations, including the executive committee of the New York City Public Development Corporation, the New York State Council on Health Care Financing, and the National Advisory Council for the Center for Hospital Finance and Management at The Johns Hopkins University. Previously, he was a management consultant and a candidate in the Democratic primary in the 20th Congressional District. Mr. Berman was the executive vice president of New York University Medical Center from 1983 to 1986. At that time he was also a professor in health care management at the School of Medicine. Mr. Berman worked for New York State from 1977 to 1983, first as director of the Office of Health Systems Management and later as the commissioner of the Division of Housing and Community Renewal. Before that, he was assistant dean of Cornell University Medical School, as well as associate director for ambulatory services at the New York Hospital, clinical assistant professor in the Departments of Medicine and Public Health at Cornell University Medical School, and senior program consultant and program director for The Robert Wood Johnson Foundation. Prior to these positions, Mr. Berman was special assistant for policy development, Office of the Assistant Secretary for Health, Department of Health, Education and Welfare. He also served in the Office of Health in the Economic Stabilization Program, the University of Utah Hospital, and the U.S. Public Health Service. Mr. Berman received B.A., M.B.A., and M.H.A. degrees from the University of Michigan.

Curtis C. Erickson

Curtis C. Erickson is president and chief executive officer of Great Plains Health Alliance, Inc., a post he has held since 1959. He was that organization's assistant director from 1955 to 1959. Having served the American Hospital Association (AHA) in many capacities, he became chairman of Regional Advisory Board 6 and a trustee in 1987. He has also chaired AHA's advisory panel to the Center for Small or Rural Hospitals and has been a member of the Council on Management, the Council on Federal Relations, and a representative to the

House of Delegates. President of the Lutheran Hospital Association of America from 1974 to 1975, Mr. Erickson was also on the board of trustees from 1972 to 1982. He was president of the Kansas Hospital Association from 1965 to 1966, a member of the board of governors of the Healthcare Stabilization Fund for the Kansas Department of Insurance, and past district governor of Rotary International. From 1983 to 1986, Mr. Erickson served on The Robert Wood Johnson Foundation's National Advisory Committee for the Rural Hospital Program of Extended Care Services. Mr. Erickson is a member of the American College of Healthcare Executives. From 1951 to 1955, he served in the U.S. Air Force. He received a B.S. in business administration from Fort Hays Kansas State University in 1951.

William D. Fullerton

William D. Fullerton is an adjunct professor in the School of Medicine, University of North Carolina at Chapel Hill. From 1978 to 1984, he was principal and president of Health Policy Alternatives, Inc., where he is now a part-time consultant. The first deputy administrator of the Health Care Financing Administration (1977-78), Mr. Fullerton was also a special consultant to the Secretary of the Department of Health, Education and Welfare. He served as chief of the professional health staff, Committee on Ways and Means, U.S. House of Representatives, from 1970 to 1976. Mr. Fullerton was the first executive secretary of the Health Insurance Benefits Advisory Council in 1965-66. Before that, he held various positions in the Social Security Administration. He is a member of the Institute of Medicine of the National Academy of Sciences. Mr. Fullerton received a B.A. from the University of Rochester.

William S. Hoffman

William S. Hoffman has been director of the Social Security Department of the International Union of the United Auto Workers since 1984. Previously, he was the assistant director and a consultant to the department. Mr. Hoffman is also director of the Michigan Health and Social Security Research Institute, Inc., where from 1973 to 1980 he was a senior research associate. An active participant in national and state health care issues,

Mr. Hoffman has served on the Michigan Certificate of Need Commission, the Department of Health and Human Services' Council on Graduate Medical Education, the Department of Labor's Advisory Council on Employee Welfare and Pension Benefit Plans, the Governor's Task Force on Access to Health Care in Michigan, and the Institute of Medicine of the National Academy of Sciences. He served in various research and teaching capacities with the Social Science Research Center at Mercy College of Detroit, the Department of Sociology at Wayne State University, the Detroit Residential Manpower Center, the Boys Republic, and the Merrill Palmer Institute. Mr. Hoffman has written and spoken extensively on such issues as the use of prepaid mental health care services and organized labor's perspective on current health care issues and legislation. He received a B.A. in psychology from Otterbein College and M.A. and Ph.D. degrees in sociology from Wayne State University.

B. Kristine Johnson

B. Kristine Johnson in 1990 was named vice president and general manager, tachyarrhythmia pacing systems of Medtronic, Inc. She is also a member of the company's senior management council. Ms. Johnson joined the company in 1982 as director of corporate affairs. Subsequently, she served as vice president, U.S. national accounts/customer marketing; vice president, corporate affairs and planning; and vice president and general manager, peripheral vascular division. Before joining Medtronic, Ms. Johnson was an executive of Cargill, Inc. She is a former chair of the health care financing committee and government affairs section of the Health Industry Manufacturers Association (HIMA). Ms. Johnson is vice chair of the University of Minnesota Hospital board and chairs its planning and development committee. She received a B.A. from Saint Olaf College and served on the college's board of regents from 1973 to 1986.

Sheldon S. King

Sheldon S. King is president of Cedars-Sinai Medical Center in Los Angeles, California. He was president of Stanford University Hospital and a clinical associate professor in the Department of

Community, Family, and Preventive Medicine at Stanford's School of Medicine from 1986 to 1989. From 1981 to 1985, Mr. King served simultaneously as the hospital's executive vice president and director as well as the university's associate vice president for medical affairs. He was also director of hospitals and clinics, University Hospital, University of California Medical Center, from 1972 to 1981. He was executive director of the Albert Einstein College of Medicine from 1968 to 1972, and held various positions at Mount Sinai Hospital from 1957 to 1968. Mr. King was chairman of the administrative board of the Council of Teaching Hospitals of the Association of American Medical Colleges. Besides serving in the House of Delegates of the American Hospital Association, he is chairman of the advisory board of the American Board of Internal Medicine. He is a member of the Institute of Medicine of the National Academy of Sciences. Mr. King is a Fellow of the American College of Health Care Executives, the American Public Health Association, and the Royal Society of Health. Mr. King received an A.B. from New York University and an M.S. from Yale University.

Larry L. Mathis

Larry L. Mathis is president and chief executive officer of The Methodist Hospital System in Houston, Texas. This system includes 12 member corporations and The Methodist Hospital. He has held this position since 1983. Before that, Mr. Mathis held a number of positions at The Methodist Hospital. Mr. Mathis is a member of the board of trustees of the American Hospital Association and has been elected to serve on its executive committee. He was chairman of The Greater Houston Hospital Council, chairman of the Texas Hospital Association, and regent for Texas in the American College of Healthcare Executives. In addition, Mr. Mathis served as a member of the administrative board of the Association of American Medical Colleges' Council of Teaching Hospitals, and as chairman of the National Advisory Council on Health Care Technology Assessment from 1985 to 1988. He was a consultant to the Ministry of Education and Culture in Brazil. Mr. Mathis served in the U.S. Army from 1965 to 1970. He received a B.A. in social sciences from Pittsburgh State University in Kansas and an M.H.A. from Washington University.

Barbara J. McNeil

Barbara J. McNeil is professor and head of the Department of Health Care Policy at Harvard Medical School and professor of radiology at Brigham and Women's Hospital. She is also director of the Center for Cost-Effective Care, Brigham and Women's Hospital. Dr. McNeil is a member of the Harvard-MIT Division of Health Sciences and Technology. Her professional and advisory activities are extensive. She serves on the board of trustees of the Society for Medical Decision Making. Dr. McNeil is a member of the joint committee of the American College of Radiology, the Association of University Radiologists, and the Society of Chairmen of Academic Radiology. She is also a member of the Fleischner Society, the Institute of Medicine of the National Academy of Sciences, and the National Council on Radiation Protection and Measurements. She serves on the American College of Radiology's committees on nuclear radiology and on quality assurance and efficacy. Formerly, Dr. McNeil was on the board of the Association for Health Services Research, the policy council of the Association for Public Policy Analysis and Management, and a member of the National Council on Health Care Technology. She has written five books and more than 150 professional articles and reports. Dr. McNeil has an A.B. in chemistry from Emmanuel College, an M.D. from Harvard Medical School, and a Ph.D. in biological chemistry from Harvard University.

Kathryn M. Mershon

Kathryn M. Mershon is senior vice president at Humana, Inc., a position she has held since 1988. She previously served as Humana's vice president, nursing. She holds an adjunct assistant professorship of nursing at Spalding University. From 1971 to 1980, Ms. Mershon was associate executive director, nursing at St. Joseph Infirmary (now Humana Hospital Audubon) in Louisville, Kentucky. Before that, she was a clinical nursing specialist at St. Joseph Infirmary, clinical instructor at St. Francis Xavier Hospital School of Nursing, and a staff nurse. She has a distinguished list of professional and community activities, including board of governors of the Federation of American Health Systems, board member of the National League for Nursing, and editorial review board of *Nursing & Health Care*. She is a former trustee of

Spalding University and member of the advisory board of the University of Louisville's School of Nursing. Ms. Mershon also served on the Louisville Board of Health and on the board of governors of Louisville General Hospital. She has made numerous public presentations on a variety of nursing-related issues. Ms. Mershon received a B.S. in nursing from Spalding University and an M.S. in nursing from St. Louis University.

Eric Muñoz

Eric Muñoz is the medical director of the University of Medicine and Dentistry at the University Hospital, New Jersey Medical School. He is also a member of the National Managed Care Council. From 1984 to 1988, Dr. Muñoz was head of the research division of the department of surgery at the Long Island Jewish-Hillside Medical Center, and assistant professor of surgery at the State University of New York at Stony Brook. He has been an instructor at the Yale University School of Medicine and New York Medical College. Dr. Muñoz is nationally recognized for his research on the DRG payment mechanism, which has focused on the higher costs of emergency hospital admissions. He is also a specialist on problems of health care delivery to the poor. Dr. Muñoz was president of the American Association of Puerto Rican Scientists and served on the board of that organization. His other numerous professional affiliations include Fellow of the American College of Surgeons, the Association for Academic Surgery, and the International Health Economics and Management Institute. He is certified by the American Board of Surgery. Dr. Muñoz has published more than 30 articles on health care costs. He received a B.A. in psychology from the University of Virginia, an M.D. from the Albert Einstein College of Medicine, and an M.B.A. in finance and economics from Columbia University. Dr. Muñoz trained in general and peripheral vascular surgery at Yale University.

Elliott C. Roberts, Sr.

Elliott C. Roberts, Sr., is assistant secretary and chief executive officer of Charity Hospital at New Orleans, a position he has held since 1984. In this capacity, he implemented a reorganization of the Louisiana State Department of Health and Human

Resources. Mr. Roberts holds an assistant professorship in the Department of Public Health and Preventive Medicine at Louisiana State University Medical School. He is also a preceptor in the Department of Health Systems Management at Tulane University School of Public Health and Tropical Medicine. From 1980 to 1984, Mr. Roberts was chief executive officer of Cook County Hospital in Chicago. Before that, he was vice president and associate project director for Hyatt Medical Management Services, as well as commissioner of hospitals and executive director of Detroit General Hospital. Mr. Roberts served as executive director at both Harlem Hospital Center (1969-72) and Mercy Douglass Hospital in Philadelphia (1965-69). An active member of the American Hospital Association, Mr. Roberts served on its board of trustees for five years, as well as on the nominating committee, House of Delegates, and in other capacities. He has held similar positions of responsibility at the National Association of Public Hospitals and the Association of American Medical Colleges/Council on Teaching Hospitals. In addition to many other appointments, Mr. Roberts served on the Secretary's Commission on Nursing, Department of Health and Human Services. He received an M.A. in business administration-hospital administration from the George Washington University.

Leonard D. Schaeffer

Leonard D. Schaeffer is president and chief executive officer of Blue Cross of California. He came to Blue Cross from his position as president of Group Health, Inc. Mr. Schaeffer was formerly executive vice president and chief operating officer of the Student Loan Marketing Association. He served as administrator of the Health Care Financing Administration, Department of Health and Human Services, and as assistant secretary for management and budget in the Department of Health, Education and Welfare. Before that, Mr. Schaeffer was vice president of Citibank, N.A. He has held various positions with the state of Illinois, including director of the Bureau of Budget, head of the State Planning Office, chairman of the Illinois Capital Development Board, and deputy director for management, Illinois Department of Mental Health and Developmental Disabilities. He was previously vice president of a private investment

banking firm, and a consultant for Arthur Anderson & Company. A Kellogg Fellow, Mr. Schaeffer is a member of the board of the University of Southern California, School of Public Administration; the Cultural Foundation; Town Hall of California; United Way; and *Managed Healthcare*. Mr. Schaeffer is also an International Fellow at the King's Fund College, London, England. He was graduated from Princeton University.

Jack K. Shelton

Jack K. Shelton is manager of the Employee Insurance Department of the Ford Motor Company, which he joined in 1956. He is responsible for the financial control and analysis of nearly all employee benefit plans. In this capacity, he participates in union negotiations, relations with insurance carriers, and financial control of company-administered plans. He also reviews changes in wage and benefit programs for foreign subsidiaries. Mr. Shelton is actively involved in a number of local and national health care organizations, serving as a director of the National Fund for Medical Education, a director of Blue Cross and Blue Shield of Michigan, and a member of the Statewide Health Coordinating Council of Michigan. In 1985, he was a member of an Office of Technology Assessment Advisory Panel on Alternative Physician Payments for Medicare and chairman of the Employer Prospective Payment Advisory Commission for the Washington Business Group on Health. He is past chairman of the National Industry Council on HMO Development, the Michigan Health Economics Coalition, the Michigan Hospital Capacity Reduction Corporation, and the Health Alliance Plan (Michigan's largest HMO). Mr. Shelton received B.S. and M.S. degrees in industrial psychology from Oklahoma State University.

J. B. Silvers

J. B. Silvers is co-director of the Health Systems Management Center of Case Western Reserve University. He is also the William M. and Elizabeth C. Treuhaft Professor of Management and professor of banking and finance at the university's Weatherhead School of Management, and professor of epidemiology and biostatistics at the School of Medicine. Before joining Case Western Reserve, Dr. Silvers was a faculty member at the business

schools of Indiana, Harvard, and Stanford. At Harvard, he directed the Program for Financial Management and Strategy in Health for five years and served on the faculty of the Program for Health Systems Management for 10 years. Dr. Silvers served the Department of Health and Human Services as a member of the Secretary's Commission on Nursing and as a member of the Health Care Technology Study Section of the National Center for Health Services Research. During 1983-84, he chaired the Governor's Commission on Ohio Health Care Costs. He has written extensively in the fields of corporate financial management, and health care and hospital finance. He also serves as a consultant or adviser to numerous private organizations. Dr. Silvers received a Ph.D. in finance and economics from Stanford University and M.S. and B.S. degrees from Purdue University in industrial administration and engineering, respectively.

Bruce C. Vladeck

Bruce C. Vladeck is president of the United Hospital Fund of New York. Immediately before joining that organization, Dr. Vladeck was assistant vice president of The Robert Wood Johnson Foundation. From 1979 to 1982, he was assistant commissioner for health planning and resources development of the New Jersey State Department of Health. In that position, he was director of the State Health Planning and Development Agency, where he oversaw the implementation of New Jersey's all payer, DRG-based hospital prospective payment system. Dr. Vladeck taught for four and one-half years at Columbia University, and has served on the adjunct faculty of Rutgers, Princeton, the College of Medicine and Dentistry of New Jersey, and New York University. He is the author of *Unloving Care: The Nursing Home Tragedy*, and has written numerous articles and book chapters on health policy, health care finance, and health politics. He is a member of the New York State Council on Graduate Medical Education, the executive committee of the New York Blood Center, the advisory committee to the Wagner School of Public Service of New York University, the visiting committee of the School of Management and Urban Policy of the New York School for Social Research, and the Institute of Medicine of the National Academy of Science. Dr. Vladeck is the president of the National Committee for Labor Israel-Histadrut. He received his bachelor's degree

in government from Harvard College and M.A. and Ph.D. degrees in political science from the University of Michigan.

Sankey V. Williams

Sankey V. Williams is director of The Robert Wood Johnson Foundation Clinical Scholars Program at the University of Pennsylvania. He also serves as professor of medicine at the Hospital of the University of Pennsylvania and professor of health care systems at the university's Wharton School. In addition, he is associate director for medical affairs in the Wharton School's Leonard Davis Institute of Health Economics. He is an associate in the Clinical Epidemiology Unit of the

university and previously served as associate director for clinical research at the University of Pennsylvania's Center for the Study of Aging. He was a Henry J. Kaiser Family Foundation Faculty Scholar in general internal medicine from 1981 to 1986. Dr. Williams currently serves as an associate editor of the *Journal of General Internal Medicine*. Certified by the American Board of Internal Medicine, Dr. Williams has published and lectured widely in many fields, including medical decision making, physician behavior, and hospital case-mix management. He received a B.A. from Princeton University and an M.D. from Harvard Medical School. Dr. Williams completed his internship and residency in medicine at the Hospital of the University of Pennsylvania and was a Robert Wood Johnson Foundation Clinical Scholar at the university.

PROSPECTIVE PAYMENT ASSESSMENT COMMISSION POLICY STATEMENT

Responsibilities—The Prospective Payment Assessment Commission (ProPAC) has two major responsibilities. First, it recommends annually to the Secretary of the Department of Health and Human Services the appropriate annual percentage change in payment for hospital inpatient discharges. The Commission is to report its recommendations to the Secretary by March 1st of each year. Second, it consults with and recommends to the Secretary needed changes in the diagnosis-related group (DRG) classification (e.g., new DRGs, modifications to existing DRGs) and in the relative weighting factors of the DRGs. In addition, the Commission is required to report to the Congress its evaluation of any adjustments made by the Secretary regarding the DRG classification and weighting factors.

In making its recommendations, the Commission will consider the hospital market basket, hospital productivity, technological and scientific advances, quality of care, and long-term cost-effectiveness of services. In order to carry out its responsibility to identify medically appropriate patterns of health resources use, the Commission is required to collect and assess information on regional variations in medical practice; length of hospitalization; and the safety, efficacy, and cost-effectiveness of new and existing medical and surgical procedures, practices, services, and technologies. While the Commission will use existing information where possible, it will also use its research authority to award grants or contracts where existing information is inadequate.

The Commission shall focus primarily on the two responsibilities cited above. Other responsibilities will be pursued to the limit of available staff and resources. The Commission will also monitor executive and legislative branch actions in regard to other areas.

Relationship to the Public—The Commission welcomes and encourages constructive relations with the public. Its meetings will be open, and it will maintain a mailing list, to the extent its funds allow, in order to keep the interested public informed of its activities and meetings.

Intramural and extramural analytic documents prepared for the Commission will be made publicly available on a case-by-case basis. Generally, final reports will be made available as part of a Technical Report Series. As a rule, technical reports will be distributed without charge to any requesting party.

The Commission encourages consumers, hospitals, physicians, business firms, and other individuals and groups to submit information, preferably in writing, with respect to medical and surgical procedures, services, practices, and technologies or other information relevant to the Commission's responsibilities. The Commission will consider this information in making reports and recommendations to the Secretary and the Congress.

However, it is extremely important to remember that the Commission is not an appeals body. It has no appeals functions or regulatory powers. The information accompanying an appeal may be used as data on system-level trends.

COMMISSION STRUCTURE, ASSIGNMENTS, AND MEETING DATES

Structure and Assignments

Subcommittee on Data Development and Research

The subcommittee is charged with identifying data needs and availability of data sources relevant to the Commission's responsibilities. In consultation with interested persons and experts, the subcommittee will analyze issues related to data needs, sources, and availability. It will also examine the strengths and weaknesses of the data and will report its findings to the full Commission. Where data are needed but unavailable, the subcommittee will present options and recommendations for data development for presentation to the Commission.

Members

Sankey V. Williams, *Chair*
William D. Fullerton
Barbara J. McNeil
Eric Muñoz
Bruce C. Vladeck

Subcommittee on Hospital Productivity and Cost-Effectiveness

The subcommittee is charged with identifying and examining procedures and issues related to the measurement of productivity and cost-effectiveness, including an examination of the hospital market basket and related variations in the provision of hospital services. In consultation with interested persons and experts, the subcommittee will analyze issues related to hospital productivity and cost-effectiveness and will present its findings, including options and recommendations, to the full Commission.

Members

Bruce C. Vladeck, *Chair*
Richard A. Berman
Curtis C. Erickson
William S. Hoffman
Kathryn M. Mershon
Elliott C. Roberts, Sr.
Leonard D. Schaeffer
Jack K. Shelton

Subcommittee on Diagnostic and Therapeutic Practices

The subcommittee is charged with identifying and examining technological and scientific advances, changing treatment patterns, and quality of care issues. The subcommittee is also responsible for examining the safety, efficacy, and relative cost-effectiveness of medical and surgical procedures, services, and technologies as they relate to the Commission's primary responsibilities. In consultation with interested persons and experts, the subcommittee will analyze issues related to the assessment of new and existing procedures, services, and technologies. It will present its findings, including options and recommendations, to the full Commission.

Members

Barbara J. McNeil, *Chair*
William D. Fullerton
B. Kristine Johnson
Sheldon S. King
Eric Muñoz
Larry L. Mathis
J.B. Silvers
Sankey V. Williams

ProPAC-PPRC**Liaison Subcommittee**

The subcommittee is responsible for information exchange and coordination of the work of ProPAC and the Physician Payment Review Commission (PPRC). The subcommittee will identify areas of mutual or overlapping interest and foster staff and commission collaboration where appropriate.

Members

John M. Eisenberg, PPRC
 William D. Fullerton, ProPAC
 Mark C. Hornbrook, PPRC
 Walter McNerney, PPRC
 Eric Muñoz, ProPAC
 Jack K. Shelton, ProPAC

Meeting Dates
**Subcommittee on Data
Development and Research**

April 18, 1989
 June 14, 1989
 September 19, 1989
 December 13, 1989

**Subcommittee on Hospital
Productivity and Cost-Effectiveness**

April 18, 1989
 June 13, 1989
 September 18, 1989
 October 24, 1989
 December 12, 1989

**ProPAC-PPRC Liaison
Subcommittee**

October 24, 1989

**Subcommittee on Diagnostic
and Therapeutic Practices**

April 18, 1989
 June 13, 1989
 September 18, 1989
 October 24, 1989
 December 12, 1989

**Prospective Payment
Assessment Commission**

April 18-19, 1989
 June 13-14, 1989
 September 18-19, 1989
 October 24, 1989
 December 12-13, 1989
 January 9, 1990
 January 30-31, 1990

STATUTORY MANDATE OF THE COMMISSION

Congress established the Prospective Payment Assessment Commission ("ProPAC") in Pub. L. 98-21 (the Social Security Amendments of 1983) on April 20, 1983. The current responsibilities of ProPAC are set forth in Section 1862(a) and Section 1886 of the Social Security Act, amended through 1989. Further responsibilities are set forth in various conference reports. The passages of the relevant legislative sources follow.

Section 1886(d)(4) and (10) of the Social Security Act

(4)(C)(i) The Secretary shall adjust the classifications and weighting factors established under subparagraphs (A) and (B), for discharges in fiscal year 1988 and at least annually thereafter, to reflect changes in treatment patterns, technology, and other factors which may change the relative use of hospital resources.

(ii) For discharges in fiscal year 1990, the Secretary shall reduce the weighting factor for each diagnosis-related group by 1.22 percent.

(iii) Any such adjustment under clause (i) for discharges in a fiscal year (beginning with fiscal year 1991) shall be made in a manner that assures that aggregate payments under this subsection for discharges in the fiscal year are not greater or less than those that would have been made for discharges in the year without such adjustment.

(iv) The Secretary shall include recommendations with respect to adjustments to weighting factors under clause (i) in the annual report to Congress required under subsection (e)(3)(B).

(D) The Commission (established under subsection (e)(2)) shall consult with and make recommendations to the Secretary with respect to the need for adjustments under subparagraph (C), based upon its evaluation of scientific evidence with respect to new practices, including the use of new technologies and treatment modalities. The Commission shall report to the Congress with respect to its evaluation of any adjustments made by the Secretary under subparagraph (C).

(10)(A) There is hereby established the 'Medicare Geographical Classification Review Board' (hereinafter in this paragraph referred to as the 'Board').

(B)(i) The Board shall be composed of 5 members appointed by the Secretary, without regard to the provisions of title 5, United States Code, governing appointments in the competitive services. Two of such members shall be representatives of subsection (d) hospitals located in a rural area under paragraph (2)(D). At least 1 member shall be a member of the Prospective Payment Assessment Commission, and at least 1 member shall be knowledgeable in the field of analyzing costs with respect to the provision of inpatient hospital services.

(ii) The Secretary shall make all appointments to the Board as provided in this paragraph within 180 days after the date of enactment of this paragraph. [This paragraph was enacted December 19, 1989.]

Section 1886(e)(2) through (6) of the Social Security Act

(2) The Director of the Congressional Office of Technology Assessment (hereinafter in this subsection referred to as the "Director" and the "Office," respectively) shall provide for appointment of a Prospective Payment Assessment Commission (hereinafter in this subsection referred to as the "Commission"), to be composed of independent experts appointed by the Director (without regard to the provisions of title 5, United States Code, governing appointments in the competitive service). In addition to carrying out its functions under subsection (d)(4)(D), the Commission shall review the applicable percentage increase factor described in subsection (b)(3)(B) and make recommendations to the Secretary on the appropriate percentage change which should be effected for hospital inpatient discharges under subsections (b) and (d) for fiscal years beginning with fiscal year 1986. In making its recommendations, the Commission shall take into account changes in the hospital market-basket described in subsection (b)(3)(B), hospital productivity, technological and scientific advances, the quality of health care provided in hospitals (including the quality and skill

level of professional nursing required to maintain quality care), and long-term cost-effectiveness in the provision of inpatient hospital services.

(3)(A) The Commission, not later than March 1, before the beginning of each fiscal year (beginning with fiscal year 1989), shall report its recommendations to the Secretary on an appropriate change factor which should be used for inpatient hospital services for discharges in that fiscal year.

(B) The Secretary, not later than April 1, 1987, for fiscal year 1988 and not later than March 1 before the beginning of each fiscal year (beginning with fiscal year 1989), shall report to the Congress the Secretary's initial estimate of the percentage change that the Secretary will recommend under paragraph (4) with respect to that fiscal year.

(4) Taking into consideration the recommendations of the Commission, the Secretary shall recommend for each fiscal year (beginning with fiscal year 1988) an appropriate change factor for inpatient hospital services for discharges in that year which will take into account amounts necessary for the efficient and effective delivery of medically appropriate and necessary care of high quality. The appropriate change factor may be different for all large urban subsection (d) hospitals, other urban subsection (d) hospitals, urban subsection (d) Puerto Rico hospitals, rural subsection (d) hospitals, and rural subsection (d) Puerto Rico hospitals, and all other hospitals and units not paid under subsection (d), and may vary among such other hospitals and units.

(5) The Secretary shall cause to have published in the Federal Register, not later than—

(A) the May 1 before each fiscal year (beginning with fiscal year 1986), the Secretary's proposed recommendation under paragraph (4) for that fiscal year for public comment, and

(B) the September 1 before such fiscal year after such consideration of public comment on the proposal as is feasible in the time available, the Secretary's final recommendation under such paragraph for that year.

The Secretary shall include in the publication referred to in subparagraph (A) for a fiscal year the report of the Commission's recommendations submitted under paragraph (3) for that fiscal year.

(6)(A) The Commission shall consist of 17 individuals. Members of the Commission shall first be appointed no later than April 1, 1984, for a term of three years, except that the Director may provide initially for such shorter terms as will insure that (on a continuing basis) the terms of no more than seven members expire in any one year.

(B) The membership of the Commission shall include individuals with national recognition for their expertise in health economics, hospital reimbursement, hospital financial management, and other related fields, who provide a mix of different professionals, broad geographic representation, and a balance between urban and rural representatives, including physicians and registered professional nurses, employers, third party payors, individuals skilled in the conduct and interpretation of biomedical, health services, and health economics research, and individuals having expertise in the research and development of technological and scientific advances in health care.

(C) Subject to such review as the Office deems necessary to assure the efficient administration of the Commission, the Commission may—

(i) employ and fix the compensation of an Executive Director (subject to the approval of the Director of the Office) and such other personnel (not to exceed 25) as may be necessary to carry out its duties (without regard to the provisions of title 5, United States Code, governing appointments in the competitive service);

(ii) seek such assistance and support as may be required in the performance of its duties from appropriate Federal departments and agencies;

(iii) enter into contracts or make other arrangements, as may be necessary for the conduct of the work of the Commission (without regard to section 3709 of the Revised Statutes (41 U.S.C. 5));

(iv) make advance, progress, and other payments which relate to the work of the Commission;

(v) provide transportation and subsistence for persons serving without compensation; and

(vi) prescribe such rules and regulations as it deems necessary with respect to the internal organization and operation of the Commission.

Section 10(a)(1) of the Federal Advisory Committee Act shall not apply to any portion of a Commission meeting if the Commission, by majority vote, determines that such portion of such meeting should be closed.

(D) While serving on the business of the Commission (including travel-time), a member of the Commission shall be entitled to compensation at the per diem equivalent of the rate provided for level IV of the Executive Schedule under section 5315 of title 5, United States Code; and while so serving away from home and his regular place of business, a member may be allowed travel expenses, as authorized by the Chairman of the Commission. Physicians serving as personnel of the Commission may be provided a physician comparability allowance by the Commission in the same manner as Government physicians may be provided such an allowance by an agency under section 5948 of title 5, United States Code, and for such purpose subsection (i) of such section shall apply to the Commission in the same manner as it applies to the Tennessee Valley Authority. For purposes of pay (other than pay of members of the Commission) and employment benefits, rights, and privileges, all personnel of the Commission shall be treated as if they were employees of the United States Senate.

(E) In order to identify medically appropriate patterns of health resources use in accordance with paragraph (2), the Commission shall collect and assess information on medical and surgical procedures and services, including information on regional variations of medical practice and lengths of hospitalization and on other patient-care data, giving special attention to treatment patterns for conditions which appear to involve excessively costly or inappropriate services not adding to the quality

of care provided. In order to assess the safety, efficacy, and cost-effectiveness of new and existing medical and surgical procedures, the Commission shall, in coordination to the extent possible with the Secretary, collect and assess factual information, giving special attention to the needs of updating existing diagnosis-related groups, establishing new diagnosis-related groups, and making recommendations on relative weighting factors for such groups to reflect appropriate differences in resource consumption in delivering safe, efficacious, and cost-effective care. In collecting and assessing information, the Commission shall—

(i) utilize existing information, both published and unpublished, where possible, collected and assessed either by its own staff or under other arrangements made in accordance with this paragraph;

(ii) carry out, award grants or contracts for, original research and experimentation, including clinical research, where existing information is inadequate for the development of useful and valid guidelines by the Commission; and

(iii) adopt procedures allowing any interested party to submit information with respect to medical and surgical procedures and services (including new practices, such as the use of new technologies and treatment modalities), which information the Commission shall consider in making reports and recommendations to the Secretary and Congress.

(F) The Commission shall have access to such relevant information and data as may be available from appropriate Federal agencies and shall assure that its activities, especially the conduct of original research and medical studies, are coordinated with the activities of Federal agencies.

(G)(i) The Office shall report annually to the Congress on the functioning and progress of the Commission and on the status of the assessment of medical procedures and services by the Commission.

(ii) The Office shall have unrestricted access to all deliberations, records, and data of the Commission, immediately upon its request.

(iii) In order to carry out its duties under this paragraph, the Office is authorized to expend reasonable and necessary funds as mutually agreed upon by the Office and the Commission. The Office shall be reimbursed for such funds by the Commission from the appropriations made with respect to the Commission.

(H) The Commission shall be subject to periodic audit by the General Accounting Office.

(I)(i) There are authorized to be appropriated such sums as may be necessary to carry out the provision of this paragraph.

(ii) Eighty-five percent of such appropriation shall be payable from the Federal Hospital Insurance Trust Fund, and 15 percent of such appropriation shall be payable from the Federal Supplementary Medical Insurance Trust Fund.

(J) The Commission shall submit requests for appropriations in the same manner as the Office submits requests for appropriations, but amounts appropriated for the Commission shall be separate from amounts appropriated for the Office.

Section 1862(a) of the Social Security Act

(a) Notwithstanding any other provision of this title, no payment may be made under part A or part B for any expenses incurred for items or services—

(1)(A) which, except for items and services described in subparagraph (B), (C), or (D), are not reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member,

(B) in the case of items and services described in section 1861(s)(10), which are not reasonable and necessary for the prevention of illness,

(C) in the case of hospice care, which are not reasonable and necessary for the palliation or management of terminal illness,

(D) in the case of clinical care items and services provided with the concurrence of the

Secretary and with respect to research and experimentation conducted by, or under contract with, the Prospective Payment Assessment Commission or the Secretary, which are not reasonable and necessary to carry out the purposes of section 1886(e)(6), . . .

Section 1135(d) of the Social Security Act

(1) The Secretary shall develop a fully prospective payment system for ambulatory surgical procedures performed on patients in hospitals on an outpatient basis.

(2) The system shall, to the extent practicable, provide for an inclusive payment rate for ambulatory surgical procedures, performed on patients in hospitals on an outpatient basis, which rate encompasses payment for facility services and all medical and other health services, other than physicians' services, commonly furnished in connection with such procedures.

(3) The system shall provide for appropriate payment rates with respect to such procedures. In establishing such rates, the Secretary shall consider whether a differential payment rate is appropriate for specialty hospitals.

(4) Such rates shall take into account at least the following considerations—

(A) The costs of hospitals providing ambulatory surgical procedures.

(B) The costs under this title for payment for such procedures performed in ambulatory surgical centers.

(C) The extent to which any differences in such costs are justifiable.

(5) The Secretary shall report to Congress—

(A) an interim report on the development of the system by April 1, 1988, and

(B) a final report on such system by April 1, 1989.

The report under subparagraph (B) shall include recommendations concerning the implementation

of the payment system for ambulatory surgical procedures performed on or after October 1, 1989.

(6)(A) The Secretary shall develop a model system for the payment for outpatient hospital services other than ambulatory surgery.

(B) The Secretary shall submit a report to Congress on the model payment system under subparagraph (A) by January 1, 1991.

(7) The Secretary shall solicit the views of the Prospective Payment Assessment Commission in developing the systems under paragraphs (1) and (6), and shall include in the Secretary's reports under this subsection any views the Commission may submit with respect to such systems.

H.R. Rep. No. 911, 98th Cong., 2d Sess. 140 (1984)

(Report of the Committee on Appropriations,
Pub. L. 98-619)

The Committee believes that the role of the Commission is that of a highly knowledgeable independent panel to advise the executive and legislative branches on the Medicare reimbursement system. While this advice includes rate setting and technology assessment, the Committee believes that the primary role of the Commission lies in a broader evaluation of the impact of Public Law 98-21 on the American health care system. The Committee therefore directs that the Commission submit an annual report to the Congress which expresses its view on these issues.

Section 9114 of the Consolidated Omnibus Budget Reconciliation Act of 1985, Pub. L. 99-272

(a) **Disclosure of Information**—The Secretary of Health and Human Services shall make available to the Prospective Payment Assessment Commission, the Congressional Budget Office, the Comptroller General, and the Congressional Research Service the most current information on the payments being made under section 1886 of the Social Security Act to individual hospitals. Such information shall be made available in a manner that permits examination of the impact of such section on hospitals.

(b) **Confidentiality**—Information disclosed under subsection (a) shall be treated as confidential and shall not be subject to further disclosure in a manner that permits the identification of individual hospitals.

Section 6003 (i) and (j) of the Omnibus Budget Reconciliation Act of 1989, Pub. L. 101-239

(i) Legislative Proposal Eliminating Separate Average Standardized Amounts

(1) In General. — The Secretary of Health and Human Services (hereafter referred to as the "Secretary") shall design a legislative proposal eliminating the system of determining separate standardized amounts for subsection (d) hospitals (as defined in section 1886(d)(1)(B) of the Social Security Act) classified as being located in large urban, other urban, or rural areas under section 1886(d)(2)(D) of such Act, and shall include in such proposal the following:

(A) A transition period beginning in fiscal year 1992 during which a single rate for determining payment to hospitals in all areas shall be phased in with such single rate to be completely in effect by fiscal year 1995.

(B) Recommendations, where appropriate, for modifying or maintaining additional payments or adjustments made under title XVIII of the Social Security Act for teaching hospitals, rural referral centers, sole community hospitals, disproportionate share hospitals, and outlier cases, and for creating additional payments or adjustments where deemed appropriate by the Secretary.

(C) Recommendations with respect to recalculating standardized amounts to reflect information from more recent cost reporting periods.

(D) Recommendations, where appropriate, for modifying reimbursement for hospitals that are not subsection (d) hospitals under title XVIII of such Act.

(E) A recommendation for a methodology to reflect the severity of illness of different patients within the same diagnosis related group (as determined in section 1886(d)(4)(B) of such Act).

(2) Report to Congress and ProPAC. — (A) Not later than October 1, 1990, the Secretary shall submit the proposal described in paragraph (1) and an accompanying analysis of the impact of the proposed elimination of separate average standardized amounts on various categories of hospitals to Congress and the Prospective Payment Assessment Commission.

(B) Not later than February 1, 1991, the Prospective Payment Assessment Commission and the Director of the Congressional Budget Office shall each prepare and submit to Congress a report analyzing the legislative proposal submitted under subparagraph (A), and shall include in such report an analysis of the probable impact of such legislation on hospitals participating in the medicare program.

(j) ProPAC Study of Payments to Rural Sole Community Hospitals and Small Rural Hospitals

(1) Study. — The Prospective Payment Assessment Commission (hereafter referred to as the "Commission") shall conduct a study of the feasibility and desirability of —

(A) using a cost-based reimbursement system to determine the amount of payments to be made under the medicare program to small rural hospitals and rural sole community hospitals for operating costs of inpatient hospital services;

(B) developing and applying alternative definitions of market share for use in determining the eligibility of hospitals for classification as sole community hospitals under section 1886(d)(5) of the Social Security Act; and

(C) developing and applying a method for accounting for decreases in the number of inpatients served in determining payment to small rural hospitals under section 1886(d) of the Social Security Act or the operating costs of inpatient hospital services.

(2) Report. — Not later than May 1, 1990, the Commission shall submit a report to Congress on the study conducted under paragraph (1).

Section 6011 of the Omnibus Budget Reconciliation Act of 1989, Pub. L. 101-239 Pass Through Payments for Hemophilia Inpatients

(a) Pass Through Payment for Hemophilia Inpatients. — The second sentence of section 1886(a)(4) of the Social Security Act . . . is amended *to read as follows* —

For purposes of this section, the term "operating cost of inpatient hospital services" . . . does not include . . . costs with respect to administering blood clotting factors to individual with hemophilia.

(b) Determining Payment Amount. — The Secretary of Health and Human Services shall determine the amount of payment made to hospitals under part A of title XVIII of the Social Security Act for the costs of administering blood clotting factors to individuals with hemophilia by multiplying a predetermined price per unit of blood clotting factor (determined in consultation with the Prospective Payment Assessment Commission) by the number of units provided to the individual.

(c) Recommendations on Payments. — The Prospective Payment Assessment Commission and the Health Care Financing Administration shall develop recommendations with respect to payments under part A of title XVIII of the Social Security Act for the cost of administering blood clotting factors to individuals with hemophilia, and shall submit such recommendations to Congress not later than 18 months after the date of enactment of this Act.

(d) Effective Date. — The amendment made by paragraph (1) shall apply with respect to items furnished 6 months after the date of enactment of this Act and shall expire 2 years after the date of enactment of this Act. [This Act was passed on December 19, 1989.]

Section 6014 of the Omnibus Budget Reconciliation Act of 1989, Pub. L. 101-239 ProPAC Study on Medicare Dependent Hospitals

(a) Study. — The Prospective Payment Assessment Commission shall conduct a study of the

appropriateness of making an adjustment to the methodology for determining the amount of payment to hospitals for which individuals entitled to benefits under part A of title XVIII of the Social Security Act represent a high proportion of discharges.

(b) Report. — Not later than June 1, 1990, the Commission shall include a report to the study conducted under subsection (a) in its annual report submitted to Congress.

Section 6137 of the Omnibus Budget Reconciliation Act of 1989, Pub. L. 101-239
ProPAC Study of Payments for Services in Hospital Outpatient Departments

(a) In General. — The Prospective Payment Assessment Commission shall conduct a study and submit a report to Congress by no later than July 1, 1990, on payment under title XVIII of the Social Security Act for hospital outpatient services. Such study shall include an examination of -

(1) the sources of growth in spending for hospital outpatient services;

(2) the differences between the costs of delivering services in a hospital outpatient department as opposed to providing similar services in other appropriate settings (including ambulatory surgery centers and physician offices);

(3) the effects on outpatient hospital costs of the step-down method used to allocate hospital capital between inpatient and outpatient departments and the extent to which hospital outpatient costs were affected by the implementation of the prospective payment system of payment

for inpatient hospital services and by increased review of such services by peer review organizations; and

(4) alternative methods for reimbursing hospitals for services in outpatient departments under the medicare program, including prospective payment methods, fee schedules, and other such methods as the Commission may consider appropriate.

(b) Reports. — (1) By not later than July 1, 1990, the Commission shall submit a report to Congress on the study conducted under section (a) with respect to the portions of the study described in paragraphs (1), (2), and (3) of such subsection, and shall include in the report such recommendations as the Commission deems appropriate.

(2) By not later than March 1, 1991, the Commission shall submit a report to Congress on the study conducted under section (a) with respect to the portions of the study described in paragraph (4), and shall include such recommendations as the Commission deems appropriate.

H.R. Rep. No. 101-386, 101st Cong., 1st Sess. 727 (1989)

(Report of the Committee of Conference for the Omnibus Budget Reconciliation Act of 1989, Pub. L. 101-239)

The conferees also request that the Prospective Payment Assessment Commission include in its June 1, 1990 report an analysis of the financial status of high case mix hospitals, with special attention devoted to capital investment in these hospitals as compared with other hospitals.

Appendix D. Change in DRG Relative Weights from Fiscal Year 1989 to Fiscal Year 1990.

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
1	1	1 SURG	CRANIOTOMY AGE >17 EXCEPT FOR TRAUMA	3.4873	3.5670	2.3
2	1	1 SURG	CRANIOTOMY FOR TRAUMA AGE >17	4.1406	4.1379	-0.1
3	1	1 SURG	CRANIOTOMY AGE 0-17	2.9183	2.8830	-1.2
4	1	1 SURG	SPINAL PROCEDURES	2.6837	2.6483	-1.3
5	1	1 SURG	EXTRACRANIAL VASCULAR PROCEDURES	1.5585	1.5214	-2.4
6	1	1 SURG	CARPAL TUNNEL RELEASE	0.4496	0.4709	4.7
7	1	1 SURG	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC WITH CC	2.8433	3.1110	9.4
8	1	1 SURG	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC	0.7432	0.7355	-1.0
9	1	1 MED	SPINAL DISORDERS & INJURIES	1.2857	1.4058	9.3
10	1	1 MED	NERVOUS SYSTEM NEOPLASMS WITH CC	1.2443	1.2449	0.0
11	1	1 MED	NERVOUS SYSTEM NEOPLASMS W/O CC	0.7852	0.7451	-5.1
12	1	1 MED	DEGENERATIVE NERVOUS SYSTEM DISORDERS	0.9296	0.9391	1.0
13	1	1 MED	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA	0.9281	0.8699	-6.3
14	1	1 MED	SPECIFIC CEREBROVASCULAR DISORDERS EXCEPT TIA	1.2348	1.2260	-0.7
15	1	1 MED	TRANSIENT ISCHEMIC ATTACK & PRECEREBRAL OCCLUSIONS	0.6333	0.6350	0.3
16	1	1 MED	NONSPECIFIC CEREBROVASCULAR DISORDERS WITH CC	1.0512	1.0949	4.2
17	1	1 MED	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC	0.6302	0.6452	2.4
18	1	1 MED	CRANIAL & PERIPHERAL NERVE DISORDERS WITH CC	0.9585	0.9640	0.6
19	1	1 MED	CRANIAL & PERIPHERAL NERVE DISORDERS W/O CC	0.6085	0.5869	-3.5
20	1	1 MED	NERVOUS SYSTEM INFECTION EXCEPT VIRAL MENINGITIS	1.7083	1.7817	4.3
21	1	1 MED	VIRAL MENINGITIS	1.3601	1.4190	4.3
22	1	1 MED	HYPERTENSIVE ENCEPHALOPATHY	0.7025	0.6981	-0.6
23	1	1 MED	NONTRAUMATIC STUPOR & COMA	0.9441	0.8698	-7.9
24	1	1 MED	SEIZURE & HEADACHE AGE >17 WITH CC	0.9528	0.9669	1.5
25	1	1 MED	SEIZURE & HEADACHE AGE >17 W/O CC	0.5332	0.5270	-1.2
26	1	1 MED	SEIZURE & HEADACHE AGE 0-17	0.9116	0.7313	-19.8
27	1	1 MED	TRAUMATIC STUPOR & COMA, COMA >1 HR	1.6526	1.6124	-2.4
28	1	1 MED	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 WITH CC	1.2170	1.2750	4.8
29	1	1 MED	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 W/O CC	0.5937	0.5730	-3.5
30	1	1 MED	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE 0-17	0.3539	0.3496	-1.2
31	1	1 MED	CONCUSSION AGE >17 WITH CC	0.6667	0.7007	5.1
32	1	1 MED	CONCUSSION AGE >17 W/O CC	0.4063	0.4038	-0.6
33	1	1 MED	CONCUSSION AGE 0-17	0.2457	0.2427	-1.2
34	1	1 MED	OTHER DISORDERS OF NERVOUS SYSTEM WITH CC	1.2705	1.2069	-5.0
35	1	1 MED	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC	0.5770	0.5597	-3.0

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
36	2	SURG	RETINAL PROCEDURES	0.6571	0.6443	-1.9
37	2	SURG	ORBITAL PROCEDURES	0.7274	0.7415	1.9
38	2	SURG	PRIMARY IRIS PROCEDURES	0.3692	0.3550	-3.8
39	2	SURG	LENS PROCEDURES WITH OR WITHOUT VITRECTOMY	0.4722	0.4494	-4.8
40	2	SURG	EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE >17	0.4763	0.4762	0.0
41	2	SURG	EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE 0-17	0.3657	0.3613	-1.2
42	2	SURG	INTRAOCULAR PROCEDURES RETINA, IRIS & LENS	0.6424	0.6305	-1.9
43	2	MED	HYPERHMA	0.3699	0.3350	-9.4
44	2	MED	ACUTE MAJOR EYE INFECTIONS	0.6346	0.6035	-4.9
45	2	MED	NEUROLOGICAL EYE DISORDERS	0.5532	0.5454	-1.4
46	2	MED	OTHER DISORDERS OF THE EYE AGE >17 WITH CC	0.6321	0.6495	2.8
47	2	MED	OTHER DISORDERS OF THE EYE AGE >17 W/O CC	0.3652	0.3539	-3.1
48	2	MED	OTHER DISORDERS OF THE EYE AGE 0-17	0.4018	0.3969	-1.2
49	3	SURG	MAJOR HEAD & NECK PROCEDURES	2.8418	2.8633	0.8
50	3	SURG	SIALOADENECTOMY	0.6448	0.6298	-2.3
51	3	SURG	SALIVARY GLAND PROCEDURES EXCEPT SIALOADENECTOMY	0.5708	0.5647	-1.1
52	3	SURG	CLEFT LIP & PALATE REPAIR	0.8499	0.8129	-4.4
53	3	SURG	SINUS & MASTOID PROCEDURES AGE >17	0.6172	0.6161	-0.2
54	3	SURG	SINUS & MASTOID PROCEDURES AGE 0-17	0.6889	0.6806	-1.2
55	3	SURG	MISCELLANEOUS EAR, NOSE, MOUTH & THROAT PROCEDURES	0.4613	0.4879	5.8
56	3	SURG	RHINOPLASTY	0.4684	0.4881	4.2
57	3	SURG	T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE >17	0.9321	0.9313	-0.1
58	3	SURG	T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17	0.3097	0.3060	-1.2
59	3	SURG	TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE >17	0.3901	0.3878	-0.6
60	3	SURG	TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17	0.2616	0.2584	-1.2
61	3	SURG	MYRINGOTOMY W TUBE INSERTION AGE >17	0.7994	0.6945	-13.1
62	3	SURG	MYRINGOTOMY W TUBE INSERTION AGE 0-17	0.3089	0.3052	-1.2
63	3	SURG	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES	1.1811	1.1882	0.6
64	3	MED	EAR, NOSE, MOUTH & THROAT MALIGNANCY	1.0883	1.1762	8.1
65	3	MED	DISEQUILIBRIUM	0.4557	0.4564	0.2
66	3	MED	EPISTAXIS	0.4394	0.4496	2.3
67	3	MED	EPIGLOTTITIS	1.0470	0.8589	-18.0
68	3	MED	OTITIS MEDIA & URI AGE > 17 WITH CC	0.7806	0.7232	-7.4
69	3	MED	OTITIS MEDIA & URI AGE > 17 W/O CC	0.5349	0.5281	-1.3
70	3	MED	OTITIS MEDIA & URI AGE 0-17	0.5853	0.4589	-21.6

Appendix D. Change in DRG Relative Weights from Fiscal Year 1989 to Fiscal Year 1990.

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
71	3	MED	LARYNGOTRACHEITIS	0.8933	0.7307	-18.2
72	3	MED	NASAL TRAUMA & DEFORMITY	0.5256	0.5528	5.2
73	3	MED	OTHER EAR, NOSE, MOUTH, & THROAT DIAGNOSES AGE >17	0.7629	0.7525	-1.4
74	3	MED	OTHER EAR, NOSE, MOUTH, & THROAT DIAGNOSES AGE 0-17	0.3427	0.3386	-1.2
75	4	SURG	MAJOR CHEST PROCEDURES	3.0335	2.9603	-2.4
76	4	SURG	OTHER RESP SYSTEM O.R. PROCEDURES WITH CC	2.4324	2.3038	-5.3
77	4	SURG	OTHER RESP SYSTEM O.R. PROCEDURES W/O CC	1.0488	1.0895	3.9
78	4	MED	PULMONARY EMBOLISM	1.4685	1.4320	-2.5
79	4	MED	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >17 WITH CC	2.0375	1.8530	-9.1
80	4	MED	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >17 W/O CC	1.2339	1.1382	-7.8
81	4	MED	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE 0-17	1.1032	1.0899	-1.2
82	4	MED	RESPIRATORY NEOPLASMS	1.2367	1.2016	-2.8
83	4	MED	MAJOR CHEST TRAUMA WITH CC	1.0107	1.0064	-0.4
84	4	MED	MAJOR CHEST TRAUMA W/O CC	0.5214	0.5009	-3.9
85	4	MED	PLEURAL EFFUSION WITH CC	1.1663	1.1437	-1.9
86	4	MED	PLEURAL EFFUSION W/O CC	0.7357	0.7223	-1.8
87	4	MED	PULMONARY EDEMA & RESPIRATORY FAILURE	1.5108	1.4597	-3.4
88	4	MED	CHRONIC OBSTRUCTIVE PULMONARY DISEASE	1.1210	1.0153	-9.4
89	4	MED	SIMPLE PNEUMONIA & PLEURISY AGE >17 WITH CC	1.2695	1.2059	-5.0
90	4	MED	SIMPLE PNEUMONIA & PLEURISY AGE >17 W/O CC	0.8268	0.7790	-5.8
91	4	MED	SIMPLE PNEUMONIA & PLEURISY AGE 0-17	0.7603	0.7465	-1.8
92	4	MED	INTERSTITIAL LUNG DISEASE WITH CC	1.3142	1.2182	-7.3
93	4	MED	INTERSTITIAL LUNG DISEASE W/O CC	0.8364	0.7936	-5.1
94	4	MED	PNEUMOTHORAX WITH CC	1.3972	1.3378	-4.3
95	4	MED	PNEUMOTHORAX W/O CC	0.7104	0.6665	-6.2
96	4	MED	BRONCHITIS & ASTHMA AGE >17 WITH CC	1.0137	0.9734	-4.0
97	4	MED	BRONCHITIS & ASTHMA AGE >17 W/O CC	0.7076	0.6810	-3.8
98	4	MED	BRONCHITIS & ASTHMA AGE 0-17	0.6356	0.8942	40.7
99	4	MED	RESPIRATORY SIGNS & SYMPTOMS WITH CC	0.7450	0.8493	14.0
100	4	MED	RESPIRATORY SIGNS & SYMPTOMS W/O CC	0.5080	0.5125	0.9
101	4	MED	OTHER RESPIRATORY SYSTEM DIAGNOSES WITH CC	0.9841	0.9966	1.3
102	4	MED	OTHER RESPIRATORY SYSTEM DIAGNOSES W/O CC	0.5818	0.5593	-3.9
103	5	SURG	HEART TRANSPLANT	14.7080	13.2352	-10.0
104	5	SURG	CARDIAC VALVE PROCEDURE W PUMP & W CARDIAC CATH	7.5631	7.8432	3.7
105	5	SURG	CARDIAC VALVE PROCEDURE W PUMP & W/O CARDIAC CATH	5.9439	5.9965	0.9

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
106	5	SURG	CORONARY BYPASS W CARDIAC CATH	5.5493	5.6558	1.9
107	5	SURG	CORONARY BYPASS W/O CARDIAC CATH	4.2102	4.2260	0.4
108	5	SURG	OTHER CARDIOTHORACIC OR VASCULAR PROCEDURES, W PUMP	5.5817	5.7332	2.7
109	5	SURG	OTHER CARDIOTHORACIC PROCEDURES W/O PUMP	3.7756	3.7746	0.0
110	5	SURG	MAJOR RECONSTRUCTIVE VASCULAR PROC W/O PUMP WITH CC	3.6677	3.5967	-1.9
111	5	SURG	MAJOR RECONSTRUCTIVE VASCULAR PROC W/O PUMP W/O CC	2.1617	2.0351	-5.9
112	5	SURG	VASCULAR PROCEDURES EXCEPT MAJOR RECONSTRUCTION W/O PUMP	1.9042	1.9106	0.3
113	5	SURG	AMPUTATION FOR CIRC SYSTEM DISORDERS EXCEPT UPPER LIMB & TOE	2.4673	2.4616	-0.2
114	5	SURG	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS	1.7145	1.6119	-6.0
115	5	SURG	PERM CARDIAC PACEMAKER IMPLANT W AMI, HEART FAILURE, OR SHOCK	3.9800	3.8541	-3.2
116	5	SURG	PERM CARDIAC PACEMAKER IMPLANT W/O AMI, HEART FAILURE, OR SHOCK	2.6632	2.5793	-3.2
117	5	SURG	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT	1.2223	1.8867	54.4
118	5	SURG	CARDIAC PACEMAKER DEVICE REPLACEMENT	1.6529	2.0267	22.6
119	5	SURG	VEIN LIGATION & STRIPPING	0.8264	0.8269	0.1
120	5	SURG	OTHER CIRCULATORY SYSTEM O.R. PROCEDURES	2.7403	2.7059	-1.3
121	5	MED	CIRCULATORY DISORDERS W AMI & C.V. COMP, DISCH ALIVE	1.6545	1.6228	-1.9
122	5	MED	CIRCULATORY DISORDERS W AMI W/O C.V. COMP, DISCH ALIVE	1.1455	1.1233	-1.9
123	5	MED	CIRCULATORY DISORDERS W AMI, EXPIRED	1.4232	1.3934	-2.1
124	5	MED	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH & COMPLEX DIAG	1.1854	1.1876	0.2
125	5	MED	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W/O COMPLEX DIAG	0.6823	0.6874	0.7
126	5	MED	ACUTE & SUBACUTE ENDOCARDITIS	3.0532	2.9894	-2.1
127	5	MED	HEART FAILURE & SHOCK	1.0365	1.0169	-1.9
128	5	MED	DEEP VEIN THROMBOPHLEBITIS	0.8359	0.8129	-2.8
129	5	MED	CARDIAC ARREST, UNEXPLAINED	1.5132	1.3986	-7.6
130	5	MED	PERIPHERAL VASCULAR DISORDERS WITH CC	0.8896	0.8921	0.3
131	5	MED	PERIPHERAL VASCULAR DISORDERS W/O CC	0.5886	0.5814	-1.2
132	5	MED	ATHEROSCLEROSIS WITH CC	0.7738	0.7565	-2.2
133	5	MED	ATHEROSCLEROSIS W/O CC	0.5624	0.5420	-3.6
134	5	MED	HYPERTENSION	0.6026	0.5964	-1.0
135	5	MED	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE >17 WITH CC	0.8927	0.9018	1.0
136	5	MED	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE >17 W/O CC	0.5713	0.5488	-3.9
137	5	MED	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE 0-17	0.6315	0.6239	-1.2
138	5	MED	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS WITH CC	0.8488	0.8707	2.6
139	5	MED	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W/O CC	0.5742	0.5715	-0.5
140	5	MED	ANGINA PECTORIS	0.6559	0.6387	-2.6

Appendix D. Change in DRG Relative Weights from Fiscal Year 1989 to Fiscal Year 1990.

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
141	5	MED	SYNCOPE & COLLAPSE WITH CC	0.6882	0.6920	0.6
142	5	MED	SYNCOPE & COLLAPSE W/O CC	0.5203	0.5149	-1.0
143	5	MED	CHEST PAIN	0.5397	0.5226	-3.2
144	5	MED	OTHER CIRCULATORY SYSTEM DIAGNOSES WITH CC	1.1483	1.1035	-3.9
145	5	MED	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC	0.6434	0.6236	-3.1
146	6	SURG	RECTAL RESECTION WITH CC	2.7773	2.7386	-1.4
147	6	SURG	RECTAL RESECTION W/O CC	1.8664	1.7349	-7.0
148	6	SURG	MAJOR SMALL & LARGE BOWEL PROCEDURES WITH CC	3.2745	3.2705	-0.1
149	6	SURG	MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC	1.7756	1.6636	-6.3
150	6	SURG	PERITONEAL ADHESIOLYSIS WITH CC	2.7173	2.6617	-2.0
151	6	SURG	PERITONEAL ADHESIOLYSIS W/O CC	1.4527	1.3478	-7.2
152	6	SURG	MINOR SMALL & LARGE BOWEL PROCEDURES WITH CC	1.4807	1.4678	-0.9
153	6	SURG	MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC	1.0636	1.0149	-4.6
154	6	SURG	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >17 WITH CC	3.8125	3.8172	0.1
155	6	SURG	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >17 W/O CC	1.7209	1.6050	-6.7
156	6	SURG	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE 0-17	0.8382	0.8281	-1.2
157	6	SURG	ANAL & STOMAL PROCEDURES WITH CC	0.9779	0.9571	-2.1
158	6	SURG	ANAL & STOMAL PROCEDURES W/O CC	0.5287	0.5136	-2.9
159	6	SURG	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE >17 WITH CC	1.1103	1.1057	-0.4
160	6	SURG	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE >17 W/O CC	0.6585	0.6314	-4.1
161	6	SURG	INGUINAL & FEMORAL HERNIA PROCEDURES AGE >17 WITH CC	0.7331	0.7337	0.1
162	6	SURG	INGUINAL & FEMORAL HERNIA PROCEDURES AGE >17 W/O CC	0.4714	0.4485	-4.9
163	6	SURG	HERNIA PROCEDURES AGE 0-17	0.9388	0.7729	-17.7
164	6	SURG	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG WITH CC	2.4065	2.3737	-1.4
165	6	SURG	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W/O CC	1.4236	1.3377	-6.0
166	6	SURG	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG WITH CC	1.4556	1.3991	-3.9
167	6	SURG	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W/O CC	0.8008	0.7922	-1.1
168	6	SURG	MOUTH PROCEDURES WITH CC	0.9713	1.0050	3.5
169	6	SURG	MOUTH PROCEDURES W/O CC	0.5320	0.5463	2.7
170	6	SURG	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES WITH CC	2.7677	2.8091	1.5
171	6	SURG	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC	1.3797	1.2563	-8.9
172	6	MED	DIGESTIVE MALIGNANCY WITH CC	1.2026	1.2216	1.6
173	6	MED	DIGESTIVE MALIGNANCY W/O CC	0.7004	0.6657	-5.0
174	6	MED	G.I. HEMORRHAGE WITH CC	0.9816	0.9620	-2.0
175	6	MED	G.I. HEMORRHAGE W/O CC	0.6376	0.5983	-6.2

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
176	6	MED	COMPLICATED PEPTIC ULCER	0.9927	0.9831	-1.0
177	6	MED	UNCOMPLICATED PEPTIC ULCER WITH CC	0.7733	0.7637	-1.2
178	6	MED	UNCOMPLICATED PEPTIC ULCER W/O CC	0.5684	0.5650	-0.6
179	6	MED	INFLAMMATORY BOWEL DISEASE	1.0929	1.0648	-2.6
180	6	MED	G.I. OBSTRUCTION WITH CC	0.9165	0.9134	-0.3
181	6	MED	G.I. OBSTRUCTION W/O CC	0.5340	0.5229	-2.1
182	6	MED	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS AGE >17 WITH CC	0.7386	0.7414	0.4
183	6	MED	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS AGE >17 W/O CC	0.5284	0.5215	-1.3
184	6	MED	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS AGE 0-17	0.6446	0.5408	-16.1
185	6	MED	DENTAL & ORAL DIS EXCEPT EXTRACTIONS & RESTORATIONS, AGE >17	0.7488	0.7627	1.9
186	6	MED	DENTAL & ORAL DIS EXCEPT EXTRACTIONS & RESTORATIONS, AGE >17	0.4112	0.4062	-1.2
187	6	MED	DENTAL EXTRACTIONS & RESTORATIONS	0.4579	0.4856	6.0
188	6	MED	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE >17 WITH CC	0.9575	0.9730	1.6
189	6	MED	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE >17 W/O CC	0.4872	0.4767	-2.2
190	6	MED	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE 0-17	0.7933	0.7671	-3.3
191	7	SURG	PANCREAS, LIVER & SHUNT PROCEDURES W CC	5.3135	5.0674	-4.6
192	7	SURG	PANCREAS, LIVER & SHUNT PROCEDURES W/O CC	2.4801	2.1816	-12.0
193	7	SURG	BILIARY TRACT PROC W CC EXCEPT ONLY TOT CHOLECYST W OR W/O C.D.E.	3.0566	3.0026	-1.8
194	7	SURG	BILIARY TRACT PROC W/O CC EXCEPT ONLY TOT CHOLECYST W OR W/O C.D.E.	1.8809	1.7802	-5.4
195	7	SURG	TOTAL CHOLECYSTECTOMY W C.D.E. WITH CC	2.3363	2.2810	-2.4
196	7	SURG	TOTAL CHOLECYSTECTOMY W C.D.E. W/O CC	1.5628	1.5106	-3.3
197	7	SURG	TOTAL CHOLECYSTECTOMY W/O C.D.E. WITH CC	1.7757	1.7378	-2.1
198	7	SURG	TOTAL CHOLECYSTECTOMY W/O C.D.E. W/O CC	1.0456	0.9865	-5.7
199	7	SURG	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY	2.2894	2.2585	-1.3
200	7	SURG	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR NON-MALIGNANCY	2.6844	2.7160	1.2
201	7	SURG	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES	2.4875	2.4093	-3.1
202	7	MED	CIRRHOSIS & ALCOHOLIC HEPATITIS	1.2400	1.1953	-3.6
203	7	MED	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS	1.0904	1.1174	2.5
204	7	MED	DISORDERS OF PANCREAS EXCEPT MALIGNANCY	1.0266	1.0387	1.2
205	7	MED	DISORDERS OF LIVER EXCEPT MALIG, CIRRH, ALC HEPA WITH CC	1.2386	1.2068	-2.6
206	7	MED	DISORDERS OF LIVER EXCEPT MALIG, CIRRH, ALC HEPA W/O CC	0.6406	0.6124	-4.4
207	7	MED	DISORDERS OF THE BILIARY TRACT WITH CC	0.9574	0.9566	-0.1
208	7	MED	DISORDERS OF THE BILIARY TRACT W/O CC	0.5798	0.5658	-2.4
209	8	SURG	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES	2.3829	2.3437	-1.6
210	8	SURG	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >17 WITH CC	2.1237	2.0536	-3.3

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
211	8	SURG	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >17 W/O CC	1.5418	1.4716	-4.6
212	8	SURG	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE 0-17	1.4611	1.4023	-4.0
213	8	SURG	AMPUTATION FOR MUSCULOSKELETAL SYSTEM & CONN TISSUE DISORDERS	1.7667	1.7701	0.2
214	8	SURG	BACK & NECK PROCEDURES WITH CC	2.0618	1.9997	-3.0
215	8	SURG	BACK & NECK PROCEDURES W/O CC	1.3053	1.2155	-6.9
216	8	SURG	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	1.6331	1.7852	9.3
217	8	SURG	WIND DEBRID & SKIN GRAFT EXCEPT HAND, FOR MUSCULET & CONN TISS DIS	2.9985	3.0640	2.2
218	8	SURG	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE >17 WITH CC	1.5637	1.5359	-1.8
219	8	SURG	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE >17 W/O CC	0.9848	0.9363	-4.9
220	8	SURG	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE 0-17	0.9242	0.9130	-1.2
221	8	SURG	KNEE PROCEDURES WITH CC	1.5164	1.5408	1.6
222	8	SURG	KNEE PROCEDURES W/O CC	0.8259	0.8855	7.2
223	8	SURG	MAJOR SHOULDER/ELBOW PROC, OR OTHER UPPER EXTREMITY PROC WITH CC	1.0621	0.8405	-20.9
224	8	SURG	SHOULDER, ELBOW OR FOREARM PROC, EXC MAJOR JOINT PROC W/O CC	0.6378	0.6248	-2.0
225	8	SURG	FOOT PROCEDURES	0.6972	0.7063	1.3
226	8	SURG	SOFT TISSUE PROCEDURES WITH CC	1.3916	1.4308	2.8
227	8	SURG	SOFT TISSUE PROCEDURES W/O CC	0.6656	0.6613	-0.6
228	8	SURG	MAJOR THUMB OR JOINT PROC, OR OTHER HAND OR WRIST PROC WITH CC	0.8098	0.7911	-2.3
229	8	SURG	HAND OR WRIST PROC EXCEPT MAJOR JOINT PROC W/O CC	0.5153	0.5117	-0.7
230	8	SURG	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES OF HIP & FEMUR	0.8502	0.8763	3.1
231	8	SURG	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES EXCEPT HIP & FEMUR	0.8773	0.9107	3.8
232	8	SURG	ARTHROSCOPY	0.9593	1.1229	17.1
233	8	SURG	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC WITH CC	1.6745	1.7280	3.2
234	8	SURG	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W/O CC	0.8595	0.8477	-1.4
235	8	MED	FRACTURES OF FEMUR	1.1956	1.1575	-3.2
236	8	MED	FRACTURES OF HIP & PELVIS	0.8869	0.8565	-3.4
237	8	MED	SPRAINS, STRAINS & DISLOCATIONS OF HIP, PELVIS & THIGH	0.5724	0.5662	-1.1
238	8	MED	OSTEOMYELITIS	1.6503	1.5778	-4.4
239	8	MED	PATHOLOGICAL FRACTURES & MUSCULOSKELETAL & CONN TISS MALIGNANCY	0.9787	0.9843	0.6
240	8	MED	CONNECTIVE TISSUE DISORDERS WITH CC	1.1186	1.0769	-3.7
241	8	MED	CONNECTIVE TISSUE DISORDERS W/O CC	0.6354	0.6218	-2.1
242	8	MED	SEPTIC ARTHRITIS	1.3247	1.3229	-0.1
243	8	MED	MEDICAL BACK PROBLEMS	0.6560	0.6501	-0.9
244	8	MED	BONE DISEASES & SPECIFIC ARTHROPATHIES WITH CC	0.7181	0.7134	-0.7
245	8	MED	BONE DISEASES & SPECIFIC ARTHROPATHIES W/O CC	0.5214	0.5108	-2.0

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
246	8	MED	NON-SPECIFIC ARTHROPATHIES	0.5672	0.5910	4.2
247	8	MED	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE	0.5365	0.5285	-1.5
248	8	MED	TENDONITIS, MYOSITIS & BURSITIS	0.6176	0.6120	-0.9
249	8	MED	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	0.6678	0.6287	-5.9
250	8	MED	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE >17 WITH CC	0.6679	0.6806	1.9
251	8	MED	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE >17 W/O CC	0.4203	0.4230	0.6
252	8	MED	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE 0-17	0.3496	0.3454	-1.2
253	8	MED	FX, SPRN, STRN & DISL OF UPARM, LOWLEG EX FOOT AGE >17 WITH CC	0.7831	0.7983	1.9
254	8	MED	FX, SPRN, STRN & DISL OF UPARM, LOWLEG EX FOOT AGE >17 W/O CC	0.4426	0.4346	-1.8
255	8	MED	FX, SPRN, STRN & DISL OF UPARM, LOWLEG EX FOOT AGE 0-17	0.4638	0.4582	-1.2
256	8	MED	OTHER MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE DIAGNOSES	0.6419	0.6251	-2.6
257	9	SURG	TOTAL MASTECTOMY FOR MALIGNANCY WITH CC	0.9893	0.9402	-5.0
258	9	SURG	TOTAL MASTECTOMY FOR MALIGNANCY W/O CC	0.7915	0.7467	-5.7
259	9	SURG	SUBTOTAL MASTECTOMY FOR MALIGNANCY WITH CC	0.9873	0.9987	1.2
260	9	SURG	SUBTOTAL MASTECTOMY FOR MALIGNANCY W/O CC	0.6023	0.5654	-6.1
261	9	SURG	BREAST PROC FOR NON-MALIGNANCY EXCEPT BIOPSY & LOCAL EXCISION	0.6377	0.6285	-1.4
262	9	SURG	BREAST BIOPSY & LOCAL EXCISION FOR NON-MALIGNANCY	0.4375	0.4464	2.0
263	9	SURG	SKIN GRAFT &/OR DEBRID FOR SKIN ULCER OR CELLULITIS WITH CC	2.7018	2.6691	-1.2
264	9	SURG	SKIN GRAFT &/OR DEBRID FOR SKIN ULCER OR CELLULITIS W/O CC	1.5881	1.4197	-10.6
265	9	SURG	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W CC	1.4303	1.3903	-2.8
266	9	SURG	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W/O	0.6895	0.6867	-0.4
267	9	SURG	PERIANAL & PILONIDAL PROCEDURES	0.6068	0.5738	-5.4
268	9	SURG	SKIN, SUBCUTANEOUS TISSUE & BREAST PLASTIC PROCEDURES	0.6173	0.6431	4.2
269	9	SURG	OTHER SKIN, SUBCUT TISS & BREAST PROC WITH CC	1.6854	1.7287	2.6
270	9	SURG	OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC	0.6966	0.6744	-3.2
271	9	MED	SKIN ULCERS	1.2174	1.1808	-3.0
272	9	MED	MAJOR SKIN DISORDERS WITH CC	1.0366	1.0183	-1.8
273	9	MED	MAJOR SKIN DISORDERS W/O CC	0.7079	0.6811	-3.8
274	9	MED	MALIGNANT BREAST DISORDERS WITH CC	1.0508	1.0610	1.0
275	9	MED	MALIGNANT BREAST DISORDERS W/O CC	0.5735	0.5793	1.0
276	9	MED	NON-MALIGNANT BREAST DISORDERS	0.5320	0.5602	5.3
277	9	MED	CELLULITIS AGE >17 WITH CC	0.9624	0.9392	-2.4
278	9	MED	CELLULITIS AGE >17 W/O CC	0.6829	0.6492	-4.9
279	9	MED	CELLULITIS AGE 0-17	0.7367	0.7278	-1.2
280	9	MED	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE >17 WITH CC	0.6403	0.6597	3.0

Appendix D. Change in DRG Relative Weights from Fiscal Year 1989 to Fiscal Year 1990.

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
281	9	MED	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE >17 W/O CC	0.4249	0.4233	-0.4
282	9	MED	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE 0-17	0.3424	0.3383	-1.2
283	9	MED	MINOR SKIN DISORDERS WITH CC	0.7760	0.7624	-1.8
284	9	MED	MINOR SKIN DISORDERS W/O CC	0.4839	0.4659	-3.7
285	10	SURG	AMPUTAT OF LOWER LIMB FOR ENDOC, NUTRIT & METABOL DISORDERS	3.0283	2.8191	-6.9
286	10	SURG	ADRENAL & PITUITARY PROCEDURES	2.5944	2.5261	-2.6
287	10	SURG	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METABOL DISORDERS	2.2201	2.2372	0.8
288	10	SURG	O.R. PROCEDURES FOR OBESITY	2.0873	1.8656	-10.6
289	10	SURG	PARATHYROID PROCEDURES	1.0952	1.0587	-3.3
290	10	SURG	THYROID PROCEDURES	0.8046	0.7805	-3.0
291	10	SURG	THYROID GLAND PROCEDURES	0.5103	0.4589	-10.1
292	10	SURG	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC WITH CC	2.7120	2.7779	2.4
293	10	SURG	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC	1.1954	1.1289	-5.6
294	10	MED	DIABETES AGE >35	0.7587	0.7509	-1.0
295	10	MED	DIABETES AGE 0-35	0.7713	0.7252	-6.0
296	10	MED	NUTRITIONAL & MISC METABOLIC DISORDERS AGE >17 WITH CC	0.9396	0.9404	0.1
297	10	MED	NUTRITIONAL & MISC METABOLIC DISORDERS AGE >17 W/O CC	0.5728	0.5480	-4.3
298	10	MED	NUTRITIONAL & MISC METABOLIC DISORDERS AGE 0-17	0.6434	0.6768	5.2
299	10	MED	INBORN ERRORS OF METABOLISM	0.8451	0.8623	2.0
300	10	MED	ENDOCRINE DISORDERS WITH CC	1.1179	1.1086	-0.8
301	10	MED	ENDOCRINE DISORDERS W/O CC	0.6420	0.6250	-2.6
302	11	SURG	KIDNEY TRANSPLANT	3.7012	3.7905	2.4
303	11	SURG	KIDNEY, URETER & MAJOR BLADDER PROCEDURES FOR NEOPLASM	2.7491	2.6773	-2.6
304	11	SURG	KIDNEY, URETER & MAJOR BLADDER PROC FOR NON-NEOPL WITH CC	2.4603	2.4944	1.4
305	11	SURG	KIDNEY, URETER & MAJOR BLADDER PROC FOR NON-NEOPL W/O CC	1.3334	1.2807	-4.0
306	11	SURG	PROSTATECTOMY WITH CC	1.4321	1.4060	-1.8
307	11	SURG	PROSTATECTOMY W/O CC	0.8634	0.7931	-8.1
308	11	SURG	MINOR BLADDER PROCEDURES WITH CC	1.5480	1.5067	-2.7
309	11	SURG	MINOR BLADDER PROCEDURES W/O CC	0.8343	0.7882	-5.5
310	11	SURG	TRANSURETHRAL PROCEDURES WITH CC	0.9112	0.9014	-1.1
311	11	SURG	TRANSURETHRAL PROCEDURES W/O CC	0.5434	0.5211	-4.1
312	11	SURG	URETHRAL PROCEDURES, AGE >17 WITH CC	0.8282	0.8071	-2.5
313	11	SURG	URETHRAL PROCEDURES, AGE >17 W/O CC	0.5054	0.4757	-5.9
314	11	SURG	URETHRAL PROCEDURES, AGE 0-17	0.4323	0.4271	-1.2
315	11	SURG	OTHER KIDNEY & URINARY TRACT O.R. PROCEDURES	2.4142	2.3366	-3.2

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
316	11	MED	RENAL FAILURE	1.2811	1.2688	-1.0
317	11	MED	ADMIT FOR RENAL DIALYSIS	0.3494	0.3814	9.2
318	11	MED	KIDNEY & URINARY TRACT NEOPLASMS WITH CC	1.0683	1.0637	-0.4
319	11	MED	KIDNEY & URINARY TRACT NEOPLASMS W/O CC	0.5777	0.5453	-5.6
320	11	MED	KIDNEY & URINARY TRACT INFECTIONS AGE >17 WITH CC	1.0427	1.0261	-1.6
321	11	MED	KIDNEY & URINARY TRACT INFECTIONS AGE >17 W/O CC	0.7247	0.6830	-5.8
322	11	MED	KIDNEY & URINARY TRACT INFECTIONS AGE 0-17	0.7487	0.7006	-6.4
323	11	MED	URINARY STONES WITH CC &/OR ESW LITHOTRIPSY	0.7915	0.7726	-2.4
324	11	MED	URINARY STONE W/O CC	0.4034	0.3964	-1.7
325	11	MED	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE >17 WITH CC	0.6833	0.6673	-2.3
326	11	MED	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE >17 W/O CC	0.4357	0.4276	-1.9
327	11	MED	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE 0-17	0.5511	0.5444	-1.2
328	11	MED	URETHRAL STRICTURE AGE >17 WITH CC	0.6200	0.6445	4.0
329	11	MED	URETHRAL STRICTURE AGE >17 W/O CC	0.4227	0.4020	-4.9
330	11	MED	URETHRAL STRICTURE AGE 0-17	0.2788	0.2754	-1.2
331	11	MED	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 WITH CC	0.9143	0.9501	3.9
332	11	MED	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 W/O CC	0.5636	0.5557	-1.4
333	11	MED	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE 0-17	0.6645	0.8884	33.7
334	12	SURG	MAJOR MALE PELVIC PROCEDURES WITH CC	1.8513	1.8224	-1.6
335	12	SURG	MAJOR MALE PELVIC PROCEDURES W/O CC	1.3617	1.3462	-1.1
336	12	SURG	TRANSURETHRAL PROSTATECTOMY WITH CC	1.0162	0.9827	-3.3
337	12	SURG	TRANSURETHRAL PROSTATECTOMY W/O CC	0.6950	0.6603	-5.0
338	12	SURG	TESTES PROCEDURES, FOR MALIGNANCY	0.7524	0.7604	1.1
339	12	SURG	TESTES PROCEDURES, NON-MALIGNANCY AGE >17	0.5867	0.5847	-0.3
340	12	SURG	TESTES PROCEDURES, NON-MALIGNANCY AGE 0-17	0.4335	0.4283	-1.2
341	12	SURG	PENIS PROCEDURES	0.9828	0.9851	0.2
342	12	SURG	CIRCUMCISION AGE >17	0.4489	0.4806	7.1
343	12	SURG	CIRCUMCISION AGE 0-17	0.3788	0.3742	-1.2
344	12	SURG	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROCEDURES FOR MALIGNANCY	1.0815	1.0569	-2.3
345	12	SURG	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXCEPT FOR MALIGNANCY	0.7907	0.7877	-0.4
346	12	MED	MALIGNANCY, MALE REPRODUCTIVE SYSTEM WITH CC	0.9178	0.9214	0.4
347	12	MED	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W/O CC	0.4833	0.4664	-3.5
348	12	MED	BENIGN PROSTATIC HYPERTROPHY WITH CC	0.6717	0.6635	-1.2
349	12	MED	BENIGN PROSTATIC HYPERTROPHY W/O CC	0.3870	0.3828	-1.1
350	12	MED	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM	0.6780	0.6716	-0.9

Appendix D. Change in DRG Relative Weights from Fiscal Year 1989 to Fiscal Year 1990.

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
351	12	MED	STERILIZATION, MALE	0.3333	0.3293	-1.2
352	12	MED	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES	0.5360	0.5500	2.6
353	13	SURG	PELVIC EVISCERATION, RADICAL HYSTERECTOMY & RADICAL VULVECTOMY	2.2704	2.0645	-9.1
354	13	SURG	UTERINE, ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG WITH CC	1.4985	1.4248	-4.9
355	13	SURG	UTERINE, ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC	0.9453	0.8943	-5.4
356	13	SURG	FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES	0.7596	0.7291	-4.0
357	13	SURG	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIG	2.2107	2.1705	-1.8
358	13	SURG	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY WITH CC	1.2466	1.2032	-3.5
359	13	SURG	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC	0.8525	0.8132	-4.6
360	13	SURG	VAGINA, CERVIX & VULVA PROCEDURES	0.7439	0.7760	4.3
361	13	SURG	LAPAROSCOPY & INCISIONAL TUBAL INTERRUPTION	0.7185	0.6859	-4.5
362	13	SURG	ENDOSCOPIC TUBAL INTERRUPTION	0.3701	0.3490	-5.7
363	13	SURG	D&C, CONIZATION & RADIO-IMPLANT FOR MALIGNANCY	0.6828	0.6987	2.3
364	13	SURG	D&C, CONIZATION EXCEPT FOR MALIGNANCY	0.4411	0.4669	5.8
365	13	SURG	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES	1.9412	1.8928	-2.5
366	13	MED	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM WITH CC	1.1233	1.1726	4.4
367	13	MED	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC	0.5110	0.4896	-4.2
368	13	MED	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM	0.8683	0.8927	2.8
369	13	MED	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS	0.5058	0.5109	1.0
370	14	SURG	CESAREAN SECTION WITH CC	0.9456	0.9848	4.1
371	14	SURG	CESAREAN SECTION W/O CC	0.7099	0.6544	-7.8
372	14	MED	VAGINAL DELIVERY W COMPLICATING DIAGNOSES	0.4442	0.4540	2.2
373	14	MED	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES	0.3099	0.2987	-3.6
374	14	SURG	VAGINAL DELIVERY W STERILIZATION &/OR D&C	0.5542	0.4981	-10.1
375	14	SURG	VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C	0.6817	0.6735	-1.2
376	14	MED	POSTPARTUM & POST ABORTION DIAGNOSES W/O O.R. PROCEDURE	0.3887	0.3502	-9.9
377	14	SURG	POSTPARTUM & POST ABORTION DIAGNOSES W O.R. PROCEDURE	0.6574	1.5119	130.0
378	14	MED	ECTOPIC PREGNANCY	0.7938	0.7232	-8.9
379	14	MED	THREATENED ABORTION	0.2956	0.2493	-15.7
380	14	MED	ABORTION W/O D&C	0.2531	0.2644	4.5
381	14	MED	ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY	0.3872	0.3769	-2.7
382	14	MED	FALSE LABOR	0.1242	0.1186	-4.5
383	14	MED	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS	0.4416	0.3759	-14.9
384	14	MED	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS	0.3200	0.3279	2.5
385	15		NEONATES, DIED OR TRANSFERRED TO ANOTHER ACUTE CARE FACILITY	1.2232	1.2084	-1.2

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
386	15		EXTREME IMMATURETY OR RESPIRATORY DISTRESS SYNDROME, NEONATE	3.6480	3.6039	-1.2
387	15		PREMATURITY W MAJOR PROBLEMS	1.8267	1.8046	-1.2
388	15		PREMATURITY W/O MAJOR PROBLEMS	1.1571	1.1431	-1.2
389	15		FULL TERM NEONATE W MAJOR PROBLEMS	1.7896	2.4098	34.7
390	15		NEONATE W OTHER SIGNIFICANT PROBLEMS	1.1117	0.8111	-27.0
391	15		NORMAL NEWBORN	0.2218	0.2191	-1.2
392	16	SURG	SPLENECTOMY AGE >17	3.6972	3.5891	-2.9
393	16	SURG	SPLENECTOMY AGE 0-17	1.5206	1.5022	-1.2
394	16	SURG	OTHER O.R. PROCEDURES OF THE BLOOD AND BLOOD FORMING ORGANS	1.4618	1.5355	5.0
395	16	MED	RED BLOOD CELL DISORDERS AGE >17	0.7427	0.7466	0.5
396	16	MED	RED BLOOD CELL DISORDERS AGE 0-17	0.4539	0.3575	-21.2
397	16	MED	COAGULATION DISORDERS	1.0426	1.0955	5.1
398	16	MED	RETICULOENDOTHELIAL & IMMUNITY DISORDERS WITH CC	1.2472	1.2279	-1.5
399	16	MED	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W/O CC	0.6899	0.6906	0.1
400	17	SURG	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE	2.7513	2.6981	-1.9
401	17	SURG	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC WITH CC	2.1688	2.2572	4.1
402	17	SURG	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W/O CC	0.9001	0.8945	-0.6
403	17	MED	LYMPHOMA & NON-ACUTE LEUKEMIA WITH CC	1.5824	1.6044	1.4
404	17	MED	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC	0.8024	0.7753	-3.4
405	17	MED	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE AGE 0-17	1.0407	1.0281	-1.2
406	17	SURG	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC WITH CC	2.7843	2.7445	-1.4
407	17	SURG	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W/O CC	1.4537	1.3042	-10.3
408	17	SURG	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R. PROC	0.9274	0.9592	3.4
409	17	MED	RADIOTHERAPY	1.0473	1.0357	-1.1
410	17	MED	CHEMOTHERAPY	0.4811	0.4890	1.6
411	17	MED	HISTORY OF MALIGNANCY W/O ENDOSCOPY	0.4733	0.4543	-4.0
412	17	MED	HISTORY OF MALIGNANCY W ENDOSCOPY	0.4334	0.4046	-6.6
413	17	MED	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG WITH CC	1.2412	1.2853	3.6
414	17	MED	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC	0.7876	0.7557	-4.1
415	18	SURG	O.R. PROCEDURE FOR INFECTIOUS & PARASITIC DISEASES	3.5992	3.6424	1.2
416	18	MED	SEPTICEMIA AGE >17	1.5896	1.5346	-3.5
417	18	MED	SEPTICEMIA AGE 0-17	1.0354	0.8929	-13.8
418	18	MED	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS	1.0188	0.9641	-5.4
419	18	MED	FEVER OF UNKNOWN ORIGIN AGE >17 WITH CC	0.9654	0.9552	-1.1
420	18	MED	FEVER OF UNKNOWN ORIGIN AGE >17 W/O CC	0.6760	0.6805	0.7

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
421	18	MED	VIRAL ILLNESS AGE >17	0.6529	0.6337	-2.9
422	18	MED	VIRAL ILLNESS & FEVER OF UNKNOWN ORIGIN AGE 0-17	0.7780	0.5874	-24.5
423	18	MED	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES	1.6059	1.5845	-1.3
424	19	SURG	O.R. PROCEDURE W PRINCIPAL DIAGNOSES OF MENTAL ILLNESS	2.2865	2.3418	2.4
425	19	MED	ACUTE ADJUST REACT & DISTURBANCES OF PSYCHOSOCIAL DYSFUNCTION	0.6215	0.6470	4.1
426	19	MED	DEPRESSIVE NEUROSES	0.6286	0.6255	-0.5
427	19	MED	NEUROSES EXCEPT DEPRESSIVE	0.5994	0.6133	2.3
428	19	MED	DISORDERS OF PERSONALITY & IMPULSE CONTROL	0.7351	0.7325	-0.4
429	19	MED	ORGANIC DISTURBANCES & MENTAL RETARDATION	0.8932	0.9016	0.9
430	19	MED	PSYCHOSES	0.9089	0.8957	-1.5
431	19	MED	CHILDHOOD MENTAL DISORDERS	0.7028	0.6347	-9.7
432	19	MED	OTHER MENTAL DISORDER DIAGNOSES	0.7004	0.7329	4.6
433	20		ALCOHOL/DRUG ABUSE OR DEPENDENCE, LEFT AMA	0.4110	0.3974	-3.3
434	20		ALC/DRUG ABUSE OR DEPENDENCE, DETOX OR OTHER SYMPT TRT WITH CC	0.8095	0.7886	-2.6
435	20		ALC/DRUG ABUSE OR DEPENDENCE, DETOX OR OTHER SYMPT TRT W/O CC	0.5738	0.5510	-4.0
436	20		ALC/DRUG DEPENDENCE W REHABILITATION THERAPY	1.0164	0.9873	-2.9
437	20		ALC/DRUG DEPENDENCE, COMBINED REHAB & DETOX THERAPY	1.2760	1.2005	-5.9
438	20		NO LONGER VALID	0.0000	0.0000	NA
439	21	SURG	SKIN GRAFTS FOR INJURIES	1.7151	1.6731	-2.4
440	21	SURG	WOUND DEBRIDEMENTS FOR INJURIES	2.4994	2.4992	0.0
441	21	SURG	HAND PROCEDURES FOR INJURIES	0.7038	0.7381	4.9
442	21	SURG	OTHER O.R. PROCEDURES FOR INJURIES WITH CC	1.9165	1.8642	-2.7
443	21	SURG	OTHER O.R. PROCEDURES FOR INJURIES W/O CC	1.1903	1.1906	0.0
444	21	MED	MULTIPLE TRAUMA AGE >17 WITH CC	0.7824	0.7594	-2.9
445	21	MED	MULTIPLE TRAUMA AGE >17 W/O CC	0.5207	0.4950	-4.9
446	21	MED	MULTIPLE TRAUMA AGE 0-17	0.4796	0.4738	-1.2
447	21	MED	ALLERGIC REACTIONS AGE >17	0.4734	0.4702	-0.7
448	21	MED	ALLERGIC REACTIONS AGE 0-17	0.3470	0.3428	-1.2
449	21	MED	POISONING & TOXIC EFFECTS OF DRUGS AGE >17 WITH CC	0.8077	0.7983	-1.2
450	21	MED	POISONING & TOXIC EFFECTS OF DRUGS AGE >17 W/O CC	0.4800	0.4648	-3.2
451	21	MED	POISONING & TOXIC EFFECTS OF DRUGS AGE 0-17	0.4819	0.3947	-18.1
452	21	MED	COMPLICATIONS OF TREATMENT WITH CC	0.9455	0.8932	-5.5
453	21	MED	COMPLICATIONS OF TREATMENT W/O CC	0.5064	0.4725	-6.7
454	21	MED	OTHER INJURY, POISONING & TOXIC EFF DIAG WITH CC	0.8993	0.9104	1.2
455	21	MED	OTHER INJURY, POISONING & TOXIC EFF DIAG W/O CC	0.4405	0.4226	-4.1

DRG	MDC	TYPE	TITLE	FY89 WEIGHT	FY90 WEIGHT	PERCENT CHANGE
456	22		BURNS, TRANSFERRED TO ANOTHER ACUTE CARE FACILITY	1.5827	3.1114	96.6
457	22	MED	EXTENSIVE BURNS W/O O.R. PROCEDURE	2.6766	1.8725	-30.0
458	22	SURG	NON-EXTENSIVE BURNS W SKIN GRAFT	4.0349	3.8130	-5.5
459	22	SURG	NON-EXTENSIVE BURNS W WOUND DEBRIDEMENT OR OTHER O.R. PROC	2.0305	1.9164	-5.6
460	22	MED	NON-EXTENSIVE BURNS W/O O.R. PROCEDURE	1.0193	1.0165	-0.3
461	23	SURG	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES	0.7333	0.7762	5.9
462	23	MED	REHABILITATION	1.8085	1.9047	5.3
463	23	MED	SIGNS & SYMPTOMS WITH CC	0.7692	0.7540	-2.0
464	23	MED	SIGNS & SYMPTOMS W/O CC	0.4831	0.4719	-2.3
465	23	MED	AFTERCARE W HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS	0.3436	0.3282	-4.5
466	23	MED	AFTERCARE W/O HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS	0.5566	0.5463	-1.9
467	23	MED	OTHER FACTORS INFLUENCING HEALTH STATUS	0.4461	0.4339	-2.7
468			EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	3.3045	3.3150	0.3
469			PRINCIPAL DIAGNOSIS INVALID AS DISCHARGE DIAGNOSIS	0.0000	0.0000	NA
470			UNGROUPABLE	0.0000	0.0000	NA
471	8	SURG	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY	4.1503	3.9672	-4.4
472	22	SURG	EXTENSIVE BURNS W O.R. PROCEDURE	12.2265	12.7129	4.0
473	17		ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE AGE >17	2.9296	3.0963	5.7
474	4		RESPIRATORY SYSTEM DIAGNOSIS WITH TRACHEOSTOMY	12.3838	13.4688	8.8
475	4	MED	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT	3.1437	3.6290	15.4
476			PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	2.2225	2.2425	0.9
477			NON-EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	1.3763	1.4318	4.0



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